

LAND ECONOMICS

a quarterly journal of

PLANNING, HOUSING & PUBLIC UTILITIES



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Hope T. Eldridge

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VOLUME XXVIII
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Population Growth and Economic Development

By HOPE TISDALE ELDRIDGE*

ONE of the most striking evidences of mankind's success in the struggle to ameliorate the conditions of life is the conquest of mortality. The implications of this achievement go far beyond the simple fact of an increase in the average length of life, for mortality could not have been reduced without a host of changes in the physical, economic, cultural and intellectual spheres. Not that all the preconditions and concomitants of declining mortality have been directly experienced by each individual in the society. Nevertheless, the gains in health and longevity through improved nutrition, personal hygiene, public sanitation, and availability of medical services and facilities have resulted from pervasive social changes associated with improved agricultural methods, the spread of education, and technological progress.

With the increased availability of demographic statistics, evidence is accumulating that the fall in death rates is not confined to the western industrialized nations (though these countries undoubtedly now enjoy the lowest mortality levels)

but that there have also been significant declines in other parts of the world in recent decades. Statistics recently compiled by the United Nations indicate that crude death rates have been reduced by one-third to one-half since 1930 in a considerable number of the so-called "under-developed" countries. This marked downward shift in mortality levels shows clearly in the data for 27 such countries for which statistics are available for the year 1930 (in one case the data relate to 1932) and for 1950 (in a few cases the data relate to 1949).¹ These areas have the following distributions with respect to the crude death rate:

Crude death rate (per 1,000)	1930	1950 (number of countries)
Under 10.0	—	4
10.0-14.9	4	17
15.0-19.9	9	4
20.0-24.9	13	2
25.0 or over	3	—

¹ These countries are: Barbados, British Guiana, British Honduras, Cape Verde Islands, Ceylon, Chile, Colombia, Costa Rica, Cyprus, Egypt, El Salvador, Fiji Islands, Guatemala, Honduras, India, Jamaica, Japan, Mauritius, Mexico, Panama, Puerto Rico, Singapore, Surinam, Thailand, Trinidad, Venezuela, Western Samoa. Source: United Nations *Demographic Yearbook*, 1951, table 14.

* Demographic & Social Statistics Branch, Statistical Office, United Nations, New York.

These data may not be taken as representative of all underdeveloped areas, for they include chiefly the more advanced among such areas. Very large and important regions such as China, Indochina, Indonesia, most of Africa and parts of Latin America, where death rates may range up to 40 per 1,000, are excluded entirely because of the absence of statistical information. However, they represent a rather broad geographic range and at least suggest that similar changes may be occurring in parts of the world where vital data are not systematically collected.

The median death rate among the 27 countries was 20.4 per 1,000 in 1930 and 12.2 in 1950, indicating a reduction of 40 percent in about two decades. These figures are subject to considerable error, stemming mainly from the underregistration of deaths. Absolute levels are no doubt understated both at the beginning and at the end of the 20-year period, perhaps by as much as 50 percent in some cases. But, in view of the probable improvement in registration during this period, it is quite possible that the magnitude of the actual decline is understated by the statistics.

Data on natality indicate that, while mortality has been falling sharply, birth rates continue at relatively high levels. The same 27 countries as listed above have the following distribution with respect to crude birth rates in 1930 and in 1950:

Crude birth rate	1930	1950
(per 1,000)	(number of countries)	
Under 30.0.....	1.....	3
30.0-34.9.....	11.....	5
35.0-39.9.....	8.....	7
40.0-44.9.....	1.....	5
45.0 or more.....	6.....	7

While these data suggest that there was something of a rise in fertility between 1930 and 1950, it seems probable that they are merely reflecting an improvement in the registration of births. Indeed, it is quite possible that, in some areas at least, the improvement in registration may be masking an actual decline in fertility.

Data for recent postwar years are more widely available as well as more accurate than data for 1930. These statistics show that crude birth rates in the neighborhood of 30 to 45 per 1,000 are prevalent in Latin America. Information for the Asian countries is limited and that for Africa is only fragmentary, but available data indicate that rates of over 35 per 1,000 are not uncommon. Such rates, no doubt underestimated, may be compared with rates of 15 to 25 per 1,000 in the more heavily industrialized countries of Western Europe and northern North America (including Australia and New Zealand).

The combination of high fertility and diminishing mortality results in accelerating rates of natural increase. Of the 125 countries for which statistics for a recent postwar year (in most cases, 1950) are available, 43 report rates of natural increase of two percent or more (see table below). More than half of these are Latin American countries. In this region, 25 of the 39 countries supplying vital data report rates of natural increase higher than two percent and five a rate of more than three percent. Seven of the 17 Asian countries show rates of two percent or more and five of the ten countries in Oceania report rates at this level. In contrast, 21 of the 39 European countries are increasing at a rate of less than one percent per year.

DISTRIBUTION OF 125 COUNTRIES WITH RESPECT TO ANNUAL RATES OF NATURAL INCREASE*
(Data refer to most recent year for which statistics are available)

Continent	All Countries	Number of countries with specified rates of increase		
		Under 1.0%	1.0-1.9 %	2.0% or more
Total.....	125	33	49	43
Africa.....	20	9	7	4
America.....	44	1	18	25
U. S. and Canada ¹	5	..	5	..
Latin America.....	39	1	13	25
Asia.....	17	1	9	7
Europe.....	34	21	11	2
Oceania.....	10	1	4	5

¹ Including all of North America north of Mexico.

*Source: "Population and Vital Statistics Reports," *Statistical Papers, Series A, Vol. III, No. 3-4*, October 1951, United Nations, New York

Although the reliability of the basic data for most of the countries (except those of Europe, the northern part of North America, Australia and New Zealand) is subject to considerable question, the indicated rates must be regarded as minimum estimates of the rates at which the populations are increasing, unless we are willing to assume that births are more fully registered than deaths. There is evidence that in some cases the coverage of births is relatively better than that of deaths. However, death registration is generally held to be more complete than birth registration. If so, an appropriate correction for under-registration would yield still higher rates of increase for those countries where recorded rates are already relatively high.²

It should be remembered that the frequency distribution shown in the

table represents units that vary greatly as to population size. Consequently, no conclusion as to the proportion of the world's population that is growing at the various rates may be drawn from it.

The statistics summarized in the table cover about nine-tenths of the population of Europe and Oceania, about four-fifths of the population of the Americas (all of northern North America and two-thirds of Latin America) about one-fourth of Africa (mostly North African Moslems and Europeans) and less than one-fifth of the Asian population. Together they comprise approximately 40 percent of the world's population. The vast populations of China, the USSR, Southeastern Asia and most of Africa, do not figure in these data. China alone, with a population somewhere between 400 million and a half-a-billion, holds perhaps one-sixth of the world's inhabitants. Speculative estimates for this country place both the birth and the death rates at high levels. A recent report on demographic conditions in the Far East, prepared by experts in the fields of population and public health states:

"There is every reason to believe that the birth rate is over 40 per 1,000 population. For anyone familiar with the behavior of birth rates throughout the world and with China's social organization, it would be surprising to find a lower rate and equally surprising if that rate were to undergo any very substantial decline in the next two decades except as a temporary result of sweeping catastrophe.

"The trend of the death rate is much less predictable. Even in the good years with no major epidemics or famines, the death rate is probably above 30 per 1,000. Some studies suggest that year in and year out it might even average 40. There is little doubt that a period of peace and strong government, even one that merely improves the functioning of the economy along existing lines, would bring considerably more favorable conditions than have existed in the past two decades and

² For example, Kingsley Davis estimates crude birth and death rates for India 1931-1941 at 45 and 31 per 1,000, respectively. The official data for this period yield average rates of 34 and 23 per 1,000. The implied rates of natural increases are 11 per 1,000 on the basis of the official data and 14 per 1,000 on the basis of Davis' estimates. See Kingsley Davis, *The Population of India and Pakistan*, (Princeton University Press, 1951). Chapters 5, 9 and 11.

would reduce death rates for at least some time."³

The present situation of China cannot be assessed, but conditions may have changed considerably since the observations on which these paragraphs are based were made.

Conditions similar to those described above may prevail in some of the other areas for which statistics are not available, high fertility being largely cancelled by high mortality with the result that rates of natural increase resemble those of the industrial countries where low fertility and low mortality yield low rates of natural increase. This probably does not apply to the USSR, however, a country which industrialized rapidly after 1920 and which may now have achieved relatively low death rates and possibly has experienced an appreciable decline in fertility.

In spite of the limitations of the data and the extent of our ignorance, the evidences of progress in the reduction of mortality are real and impressive. As is often the case with important discoveries or profound social changes that represent great achievement in a given direction, this piece of progress has precipitated conditions that may in the course of time stifle further achievements in the direction of economic development and higher levels of living.

The story of the demographic evolution of the Western World since the middle of the seventeenth century is well-known and needs only be sketched here. The decline in mortality which began at about the same time as the Industrial Revolution was accompanied by a rapid and sustained growth that resulted in a seven-fold increase in the population of Europe and "Europe overseas" within the space of about 300

years. The fall in birth rates, which began later than the fall in mortality, considerably reduced the rate of natural increase and, on the eve of the second World War, several countries were actually recording a small natural decrease. During and after the war, fertility levels in these areas rose significantly. Current rates of natural increase are still higher than during the inter-war period, but they now show some signs of a moderate decrease.

Upon this story, combined with a recognition of the widening gap between fertility and mortality in economically under-developed or densely populated countries, rests a growing concern over the prospect of diminishing natural resources before a rising tide of starving and shivering humanity. We hear of precious top soil washing down the mountain sides and into the sea, forests melting before fire and axe, coal veins approaching exhaustion, petroleum deposits running low, while mankind spawns and multiplies, heedless of the future and oblivious to the approach of disaster.

There is no doubt that this concern is justified in large measure, but the proclivity for seeing only one aspect of a problem, and preferably the dreary one, should not be allowed to make us forget to examine alternative possibilities with some care. Above all, the paralysis of despair should be avoided. The record of man's progress is one of increasing ingenuity in controlling his environment and planning his future. While resourcefulness is not a complete substitute for resources, the latter cannot be exploited without the former. Furthermore, it is clear that what constitutes a resource is subject to the most startling changes. It is quite impossible to foretell very far into the future just which among the presently unused objects and forces lying about on our planet or perhaps drifting

³ Marshall C. Balfour, Roger F. Evans, Frank W. Notestein and Irene B. Taeuber, *Public Health and Demography in the Far East* (Rockefeller Foundation, 1950), pp. 74-75.

through outer space may be transformed overnight into valuable resources.

This is not to say that we must not attack our present problems in terms of what is known and attainable here and now and in the foreseeable future. But we need not break our hearts too irreparably over the grim fate of mankind 1,000 or even 100 years from now, for their problems are certain not to be the same as our problems, and their fate may well be happier than our own.

Consider the problem of food, for example. Opinions differ as to how far we can go in expanding world food production.

We are reminded, on the one hand, that practically all fertile and accessible land is already under cultivation, that much of the land that is now under cultivation should not even be planted to crops, that much of what was once fertile land has deteriorated or been forced out of cultivation by poor farming methods. According to this school, the end is in sight for agricultural expansion. The threat of further substantial increases in population can only mean creeping starvation, as numbers plunge ahead of production, agricultural resources contract, and available average supplies drop below the danger point.

This is not an unreasonable view, if we assume the worst in all directions. Resources *have* been wasted in the past; good land *has* been misused; most of the world's most fertile land *is* already under cultivation; population *is* likely to increase; no doubt there *are* limits to what the world can be made to produce. In some regions of the world the density of the population with respect to agricultural land and the recurrent periods of distress resulting from crop failures, droughts, floods, etc. give the effect of over-population. There are areas in India, for example, where the density of

the agricultural population exceeds 600 persons per square mile of cultivated land. There are regions in Japan where every available piece of soil is under cultivation, including the small strips of land along the railways and even between the cross-ties. In China before the revolution the evidences of exhausted land and pressure of the population upon agricultural resources were wide-spread. In such crowded areas the parcelling of farm land, whereby farms have been cut into smaller and smaller fragments as they passed from one generation to another, has probably reinforced the loss in productive capacity caused by agricultural malpractice of other types. With respect to these areas it is difficult to imagine how the population tolerance of the land could be significantly increased.

According to another point of view, such conditions as those described above obviously call for radical social and economic reorganization. They do not necessarily attest to the absolute inability of the land to produce sufficient food for an even larger population than is now forced to draw sustenance from it. For now that we are aware of past mistakes, it is not necessary that we continue to make them in the future. If we do continue to make them, no doubt we shall have to pay the price. The choice is ours. Furthermore, the long run and the short run may not be looked at within the same frame of reference. The calamity-howlers have their eyes on the long run and their minds on the present state of the world. At any time in history, a look at the distant future in the perspective of contemporary ways and means must have been alarming. It does not do to assume that the dynamics of population growth are eternal while those of resources development are approaching stalemate and retrogression, for this has not been so in the past.

The outlook for the short run, in terms of what is possible, appears to be much less depressing than the one that is so popular among recent best-sellers. Perhaps the reason for this is that scientists and technicians are inclined to deal with problems into which they can really sink their teeth, rather than to indulge in imaginary extrapolation of certain trends, selected for their scare-value and press-appeal.

Richard Bradfield, agronomist at Cornell University has said, "In the majority of cases the most optimistic views of the world's potentialities for sustained and increased food production are expressed by the agricultural scientists and the most pessimistic views by the non-agriculturists!"⁴ Bradfield indicates that the earth's crust contains, for all practical purposes, an inexhaustible supply of all known plant nutrients except nitrogen, of which there is an inexhaustible supply in the atmosphere, and that the earth is not going to run out of the raw materials for soil building in the foreseeable future. He concludes that the great advances of agricultural science in the past have brought the world to a stage where the problem of food can be attacked with confidence and that, to this end, programs of research should be intensified all over the world. If, in the future, the world is not better fed, it will not be the shortage of physical resources that is the cause, but poverty and ignorance.

Salter of the U. S. Department of Agriculture estimates that the goals set by the Food and Agriculture Organization of the United Nations for agricultural production in 1960 which represent an adequate diet for all people (including allowance for population increase) can be

met through the utilization of resources known to exist. Increases obtainable through more intensive use of present cropland and through the development of additional land not now cultivated would more than meet these goals for 5 out of the 7 basic classes of food, and could be made to meet the others also if shifts in the utilization of certain raw products were made. "To meet world food needs, then, much less than all these sources of production are required, if efforts are made to produce primarily those classes of foods in deficit."⁵

Kellogg, also of the U. S. Department of Agriculture, similarly estimates that the improvement of agricultural methods and the bringing into cultivation of additional land (estimated by both Salter and Kellogg at about 1.3 billion acres as compared with about 3 billion acres already under cultivation) would meet food requirements for some time to come.⁶ Kellogg emphasizes the need for further research and points out that practices that are good in one place can be ruinous in another. The goal of conservation should not be conservation itself but a sustained productivity whereby, for example, erosive lands are under a protective cover that is also a productive cover.

There is often a considerable gap between what is possible and what is achieved. The possibilities are all rather firmly based on known resources and established techniques of production. It is some years now since they were plainly stated. But only a few months ago, the Food and Agriculture Organization of the United Nations, which was founded precisely for the purpose of

⁴ Richard Bradfield, "Soil Resources and the World's Potential Food Supply," *Studies in Population*, Proceedings of the Annual Meeting of the Population Association of America at Princeton, New Jersey, May, 1949. (Princeton University Press, Princeton, New Jersey, 1949).

⁵ Robert M. Salter, "World Soil and Fertilizer Resources in Relation to Food Needs," *Freedom from Want* (E. E. DeTurk, ed.) *Chronica Botanica*, Vol. 11, No. 4, 1948.

⁶ See Charles E. Kellogg, "Food Production Potentialities and Problems," *Journal of Farm Economics*, Proceedings Number, February 1949.

implementing the kind of program declared possible by Bradfield, Salter, Kellogg and others, was forced to announce that perhaps three-fifths of the world's population is undernourished and that food supplies per capita are estimated to be four percent below prewar levels.

FAO is not to be blamed for this state of affairs. Its heroic efforts could not transcend its puny budget and limited powers. The United Nations technical assistance program and the United States Point Four program also represent but a small beginning. In a divided world, throwing much of its strength and substance into non-productive enterprises, it is not surprising that food production has not kept pace with population growth.

The practical problems involved in a successful and effective program are enormous and complex, both in terms of the world as a whole and in terms of conditions, resources and people as they exist in the various regions of the world.⁷ Meanwhile, the possibilities are still there. The world is still rich and waiting.

In the face of the slow grinding of the mills of man's corporate intelligence, a certain desperation sets in. Man's very numbers take on a sinister significance and we arrive at an interesting paradox in which we see his extinction implicit in his prolixity, the same mechanism whereby he gained life and welfare becoming the mechanism whereby he loses them. Hence the advocacy of controlled population growth. Few doubt that the small-family system will develop spontaneously in the East with industrialization, urbanization and the "emancipation" of women, just as it developed in

the West. But now that the open spaces are gone, there is fear that the rapid expansion of population, which is already under way in a considerable number of countries, as we have seen, will thrust ahead of economic development bringing down the social structure in a morass of poverty and frustration.

For obvious reasons, the underprivileged peoples of the world are largely unaware of any need to reduce their birth rates, of any threat of a "population explosion," of the possibility that they can control the number of children they have; they are in general quite without the means of practicing birth control as it is practiced in industrial society, even if they wanted to do so.

On the whole it is difficult to judge which approach represents the more formidable problem in social engineering, the economic or the contraceptive. Not that either approach precludes the other. Indeed, most of the proponents of population control regard their program as a holding operation while economic development gets under way. Their position is that it will be easier to raise levels of living if the increase in numbers is held in check.

Many feel that the outlook is hopeless in the absence of a simple contraceptive that can be taken orally, or by injection, or in some manner that would be appropriate and convenient in peasant populations living under relatively primitive conditions. Recent research in this field holds out the promise that such a cheap and simple contraceptive may be available in a matter of years. So, even as the possibility of greatly increased food supplies appears to be just around the corner, the possibility of controlling the rate of population growth seems also to be almost within our grasp. The impact of such a product on the patterns of human behavior and incidentally on the problem

⁷ For a more specific treatment of these, see *Findings of Studies on the Relationships between Population Trends and Economic and Social Factors*, especially Chapter IX, "World Population and Resources," United Nations Document E/CN.9/77. United Nations, New York, March 22, 1951.

of population cannot be estimated in advance.

While we watch the development of these varied prospects and possibilities, there is one aspect of the problem of population and resources that should be considered carefully. The very word "balance" implies that population is on one side of the scales and food or natural resources on the other side. This antithesis is to a considerable degree unreal. Population and resources will not line up on opposite sides of a balance sheet, for population is itself both a resource and a consumer of resources. Even if a distinction is made between resources as raw materials and resources as human labor and ingenuity, the logical dilemma is not entirely avoided. We are so long past the stage when subsistence could be gained by foraging and browsing that almost no raw materials are utilized in their free and native state, i.e., without cultivation, processing, preservation, transportation or some form of manipulation that goes far beyond the simple acts of picking and gathering.

On the surface, it seems a matter of elementary arithmetic that, if consumer goods are in short supply, a quick curtailment of population growth or even a reduction in numbers would enhance the goods available for each member of the population. Actually, the immediate effects of population control are not so easy to evaluate. It does not necessarily follow that a reduction in numbers will automatically produce a signally higher level of living for the existing population. For this reason the advocates of population control are often accused of evading the basic issue, of substituting family limitation for a positive program of economic development. This accusation is perhaps partly justified. Nevertheless, it cannot be denied that a considerable amount of strength and energy go into

the bearing and rearing of large families and that a significant proportion of available supplies is consumed by the non-producing part of the population. Much of that strength would be freed for more directly productive kinds of work if the number of births were reduced. If, however, some provision is not made so that this strength and energy are used effectively, very little gain will have been made.

From the economic point of view there is not much to choose between unused energies and constant child-bearing. Under these circumstances, the economic cost of high fertility, with its attendant high infant mortality, is probably not excessive. In areas where high fertility is not cancelled by high mortality, the gains that are reflected in the lower mortality will in any case be negated if human capacities are not fully utilized. From the ethical point of view there is a certain irresponsibility, whether individual or collective, about bringing large numbers of children into the world without adequate provision for feeding and clothing them and bringing them safely to maturity.

By and large, it does not make sense to worry over the depletion of material resources when the human agent is not employed to its utmost, both in the exploitation and in the judicious conservation of these resources. It *does* make sense to divert energy from child-bearing to economic development wherever poverty and malnutrition are prevalent, wherever the difference from year to year between death and survival is largely a matter of luck with the crops and the weather.

One thing is certain. Birth control is not a panacea. It is only a means to an end and in some ways a negative means. Surely, the chief object is to build a

modern, literate, well-nourished, technologically competent society in all the presently under-developed areas of the world.

Those who take a dim view like to compound population increases at various percentages per annum and terrify us with the results. But it is useless to

calculate numbers of persons without qualifying the other variables in the equation of the future. The prospect of a doubling of the world's population by the end of the twentieth century holds no terrors unless we can be certain that the physical appurtenances of life cannot be more than doubled in the same period.

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Equitable Tenancy Arrangements in Progressive Agriculture[†]

By JOHN STUART HILL*

IN writing a paper on the subject of equitable tenancy arrangements I must, of necessity, be influenced by my knowledge and experience of rural estate management in England. It, therefore, seems desirable first to provide a little background before discussing the specific matters which arise out of the words "equitable tenancy arrangements." The existing arrangements, so far as England is concerned, have been gradually built up over a long period and have been influenced by the pattern of land ownership, land tenure and farming practice, and changes, social and economic, which have taken place.

I am not intending to quote many statistics as these are readily available in various publications, but perhaps it will be helpful to observe that the population of England and Wales is about 43½ million which gives an average density of about 750 persons per square mile. The close concentration of the industrial population in large towns and urban areas, however, leaves about 24 million acres under crops and grass on holdings of upwards of one acre. The number of holdings concerned is about 367,000. About 1¼ million persons are regularly engaged in agriculture. I should perhaps explain that my remarks relate to England and Wales (exclusive of Scotland and Northern Ireland) because Scotland and Northern Ireland have their own Agricultural Departments. While there is close contact and consultation between these Departments and the Ministry of Agriculture and Fisheries, my

subsequent remarks on legislation and procedure relate to England and Wales. Moreover, the general all-over picture is not thereby appreciably influenced.

Before the late war imports of food and feeding stuffs accounted for 45% of our total imports and in terms of calories for human consumption we were producing about 30% of our requirements. At the beginning of 1949 our production in these terms had been increased to about 40%. Our aim by 1952 is to achieve a higher level of agricultural production than ever before; that is, to produce in terms of calories for human consumption one third more than was produced before the war and to save the equivalent of 4 million tons of imported feeding stuffs.

It will, therefore, be clear that our most immediate problem and task in relation to land management and farming is one of increased production so that the agricultural industry can make its maximum contribution towards the job of balancing the national budget.

The present pattern of land tenure derives from Norman times when the land tenure was the English manorial system—mediaeval manor comprised of the lord's demesne, the homesteads and lands of the freeholders or yeomen, and of the unfree tenants, the cottages of the workers, the open field, woodland and water. The eighteenth century witnessed a great improvement in agricultural estate use by enclosure and layout and also in the development of farming practice. Incidentally, it was in the year 1727 that the first manual on the subject of land agency was written. By the nineteenth century British agriculture was famous by comparison with then

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existing standards and the industry was prosperous. Depression occurred later in that century, the immediate cause being the importation of corn and meat from the new world, necessary to feed the rapidly increasing industrial population, but at a price with which the English farmer could not compete.

This depressed economic position of British agriculture persisted in a greater or less degree until the outbreak of the first world war. This is not to say that fine stock was not reared and that our export trade in pedigree animals was not maintained—we know it was and, as in every walk of life, the particularly efficient and progressive man made good; but, in general, farming was carried on on a basis far below full production, large areas previously under cultivation reverted to grass and the economy, excluding the period of the first World War, was one of low costs and low returns. In fact, between 1870 and 1937 the crop acreage dropped as follows: cereal crops, 47%; root crops, 46%; and rotation grasses, 19%. During the greater part of this period the often maligned, large landowner did much to enable his tenants to exist, and thus to insure the land being farmed at all, by allowing them to remain in occupation at rents which afforded him little, or doubtless in some cases, no return on the capital invested in his land, and in not a few instances by positively assisting them to carry on.

Prior to 1914 the break-up of many medium-sized and large estates was in progress for economic (pressure of taxation and death duties), personal and other reasons and this process was greatly accentuated towards the end of, and in the years immediately following, the first World War. That war made farmers prosperous but did not improve the position of landowners. As the

result of newly found prosperity many tenant-farmers purchased their farms soon to find that, with the repeal of the Corn Production Act and other causes, a heavy depression again returned to the agricultural industry. Many who had purchased at the high prices then obtaining and had taken up a large proportion of the purchase money on mortgage and in addition had, of course, assumed the landowners' liability for the maintenance of permanent equipment, found themselves unable to carry on. At the present time, of the aggregate number of farms and of the total area of farm land approximately one-third is in owner-occupation, the remaining two-thirds being farmed by tenants.

Certain measures of relief—notably marketing schemes and some import regulations—somewhat improved the position of the farming industry in England after 1931 and before the second World War. Having made this brief reference to landownership and agriculture. I will now say a very few words about the pattern of the countryside.

England is mainly a country of small farms, about 80% not exceeding 100 acres in area, about 18% being between 100 and 300 acres and about 4% above this acreage. They are not set out in squares or rectangles, but are often of irregular shape and sometimes are made up of scattered areas of land. In many parts of the country a field of, say, 20 acres is the exception rather than the rule and sizes of enclosures run between 5 and 15 acres. This means, of course, that there is a lot of fencing on the normal farm, mostly hedges, and in the lowlands, ditches or rhines and on some of the hill farms loose stone walls. The type and inherent quality of the soil differ widely and frequently so that hardly anywhere are there large areas of uniform land. We also have our frequently varying

altitudes with, as is common elsewhere, the less productive land at higher levels. In the main, mixed farming (with live-stock) is practiced, dairying (liquid milk production) being predominant. A large number of farms are devoted almost entirely to the production of milk and those which can be placed in the mixed and stock rearing groups very often also produce and sell liquid milk, while the production of vegetables for human consumption is often a side line on farms which are suitable as regards situation and soil. In the recent past, there has been relatively little corn-growing except in the eastern counties, though during and since the late war we have had to do much in the way of taking the plough round the farm for the purpose of wheat production and more especially, taking the long-term view, for the production of protein content cattle feeding stuffs which previously had been largely imported, but which for economic reasons it is not now practicable to purchase from overseas.

It can, I think, be fairly stated that until recent years farm buildings erected long ago were and, in fact, they often still are, being relied upon in the main to serve the requirements of the farm. There has been very substantial new construction of, and improvements and adaptation to, cowhouses and dairy equipment in connection with essential requirements for clean and tuberculin-free milk, but much still remains to be done to bring up-to-date other farm buildings. Many of these old buildings are substantially erected and in fair condition and still serve the industry well, but they are progressively becoming less suitable to meet modern requirements, particularly as to convenient layout and the increasing necessity of saving labor (man hours) in the tending and feeding of stock. Thus, there is a constant demand for improved and up-to-date ac-

commodation and, moreover, landowners have now statutory duties in this respect to which reference is made later on.

It will not perhaps be out of place to mention the medium through which landowners and their tenants usually do their bargaining, air their grievances and settle their differences. The person, who generally can claim to be counsellor and friend to each in their relationship of landlord and tenant, is known as a land agent. Usually land agents are qualified by examination and belong to professional bodies of which the three principal ones serving the agricultural industry in England are The Royal Institution of Chartered Surveyors, the Land Agents' Society and the Chartered Auctioneers' and Estate Agents' Institute. In the case of large estates there is often a resident land agent who is a full-time employee of the landowner, but many estates and small ownerships are managed by a member of a firm in general practice as land agents, valuers and auctioneers, while there are a not inconsiderable number of small owners who consider they can manage their affairs successfully without obtaining professional advice. The existence of these professional men, trained in practical land agency and in the application of the law of landlord and tenant, undoubtedly has influenced through the years the maintenance of equitable landlord and tenant arrangements.

The rights of the two parties in their relationship of landlord and tenant and, in the event of their dispute, the legal position between them, has been governed by four matters:

- (a) the contract of tenancy, either in the form of a lease for years, or, much more frequently, in the form of an agreement for a lease which conveys an annual tenancy requiring twelve months' notice by either party to terminate it;

- (b) an unwritten law known as the custom of country which came into operation mainly on the termination of the tenancy;
- (c) common law with regard to a few matters, if these were not otherwise covered under contract or custom, and
- (d) statute law, viz: Acts of Parliament passed from time to time since the first Act in 1875, under the title of Agricultural Holdings Acts.

This legislation has been designed to secure fair dealing between landlord and tenant, both during the term of the tenancy and upon its termination, and its main trend has been towards giving the tenant more security of tenure, freedom to crop as he pleases, provided he maintains the fertility of the land and puts his tillage area into proper rotation in the last year of the tenancy, to carry out improvements and to receive adequate compensation for such improvements when he quits the holding. Provision was also made for compensation for disturbance to be paid by the landlord if, as a result of a notice to quit given by him, the tenant left the holding unless it could be shown that the tenant was not farming in accordance with the rules of good husbandry. The important provisions were operative despite any agreement to the contrary and a method of settling disputes by reference to an arbitrator, instead of by recourse to the courts, was laid down.

I now come to the second World War which compelled a drastic reconstruction of our agricultural economy in the interests of intensive production, particularly of foods and feeding stuffs which previously we could import. I do not intend to dwell on what was then achieved. I refer to the period because it helped to provide the pattern of administrative machinery through which our postwar agricultural policy is carried out. As is widely known, County War Agricultural Committees were set up under Emergency War-Time Powers.

These Committees were given, as a temporary measure, extensive powers of direction and control of food production which they exercised in their respective counties on behalf of the Minister of Agriculture and Fisheries in whom those powers were actually vested. Apart from issuing of directions for cropping and the breaking up of permanent pasture, the taking of possession, temporarily, of land and farms and directly farming such of them as could not otherwise have been cultivated, they had to acquaint themselves with all the needs of farmers and in so far as possible arrange for their supply. During the war years the arable area was increased by 6 million acres to 15 million acres and the yearly importation of feeding stuffs was reduced by 1½ million tons. The substitution of mechanized power for horse power on farms was greatly accelerated, for example, the number of tractors increased from about 55,000 in 1939 to 190,000 at the end of the war. It is now about 300,000.

We now had to take stock of the broad long-term economic position of the country and firmly face the fact that the clock could not be put back and that we were obliged to produce an all-over policy for the agricultural industry which would not only provide the incentive and the means to maximum food production, but would also be capable of being implemented. Also, this had to be provided for by democratic methods and within the framework of the existing pattern of British agriculture and land tenure. As a result there was passed by Parliament the Agriculture Act of 1947, which may be termed a new deal for the agricultural industry and which brings the state into the picture as the guardian of the interests of the community as a whole. Thus there became four partners or interested parties—the landowner, the occupier (whether he is also the owner

or a tenant) in his capacity as a farmer, the agricultural worker and the state. In fact, the position of the agricultural worker does not enter largely into the subject matter of this paper, but I would mention that statutory provisions and consultative machinery exist for the improvement of his status as regards wages, housing and the possibility of his ultimately becoming a farmer.

Whereas previous legislation affecting landlord and tenant had been designed primarily for the purpose of insuring fairness between those parties, the Agriculture Act of 1947 is much wider in scope. Its purpose is to provide for all those working on the land, or connected with it, the machinery through which they can increase the efficiency of agriculture and thus step up food production and ensure the future prosperity of the industry. The Act comprises five parts, viz:

Part I

Devoted to provisions for securing assured markets and guaranteed prices for agricultural produce and thereby ensuring stability in the industry. The greater part of the farmers' output is purchased by the Ministry of Food either directly or through authorized agents.

Part II

Devoted to securing that landowners fulfil their responsibilities to manage their land in accordance with the rules of good estate management and that occupiers or tenants fulfil their responsibilities to farm their holdings in accordance with the rules of good husbandry.

The rules of good estate management require a landowner to manage his land in such a way as will enable an occupier or tenant of the land, reasonably skilled in husbandry, to maintain efficient production as regards the kind of produce and the quality and quantity of it. In particular, this places a responsibility on the landowner to provide, improve, maintain and repair fixed equipment on the land in so far as is reasonably necessary to enable efficient production to be secured.

The rules of good husbandry require a tenant to maintain a reasonable standard of production, both as regards the type of farming, and the way it is carried out, and to preserve the fertility of the land. To crop and stock the land properly; to keep stock and crops free from disease and pests; and in so far as the liability is his under contract or statute, to carry out necessary works of maintenance and repair.

Part III

Devoted to the relationship of landlord, tenant and the state, which for a time had to be read in conjunction with previous landlord and tenant legislation. A consolidating act, the Agricultural Holdings Act, 1948, now sets out the law in this respect.

Part IV

Devoted to the provision of Statutory Tenant Holdings by Local Authorities—notably the Councils of counties who, for the past 50 years or so, have been entrusted, under various smallholdings acts, with the provision of smallholdings for prospective farmers with limited capital at their disposal. Perhaps the principal difference between the smallholdings provisions of the 1947 Act and the previous smallholdings legislation is that in the selection of tenants from applicants for smallholdings preference must now be given to bona fide agricultural workers, whereas previously the majority of those settled on statutory smallholdings were sons of small farmers. Facilities also exist for making loans to selected applicants who have insufficient capital of their own to stock the holding. Since the inception of smallholdings legislation about 450,000 acres have been acquired by county councils for this purpose in England and Wales.

Part V

Provides for the setting up of an Agricultural Land Commission for the purpose of managing and arranging for the farming of land vested in the Minister of Agriculture on behalf of the state. Such land comes into state ownership by various channels, usually because for one reason or another it could not, or would not, be adequately developed to enable it to be farmed in accordance with the rules of good husbandry if it remained in private ownership.

This part of the Act also provides for the setting up in each administrative county in

England and Wales of Agricultural Executive Committees, who act as agents of the Minister of Agriculture. These Committees, first set up in 1939 to deal with war-time food production requirements, are thus retained and are responsible for administering, in the interests of good estate management and of good husbandry and thus of adequate production, Parts II and III of the Act.

These Committees are in constitution nicely balanced as between representatives of agricultural interests. They consist of a maximum of 12 members, 5 appointed directly by the Minister and 7 from panels nominated by the interests concerned. They are the judges, on behalf of the Minister, of farming and estate management efficiency, subject to a right of appeal in some instances, by an aggrieved landowner or farmer, to bodies known as Agricultural Land Tribunals.

It is most necessary to appreciate that the primary object of the Act, as regards securing efficiency in farming and estate management, is to secure this by means of help and advice to the parties concerned and that the ultimate sanction of dispossession of either landlord or tenant is not put into effect until every chance has been given to the defaulting party to profit by advice offered on problems of farming and management. In this connection either may be put under supervision for a period to enable him to remedy deficiencies and it is only after he has had full opportunity to do so that the question of dispossession arises.

In connection with the availability and tendering of advice I should explain that agricultural research in Great Britain is largely financed and co-ordinated by the state and its results have been available to farmers for many years. The war years, however, showed that an adequate advisory service for farmers is essential if maximum food production is to be obtained and in 1946 a National Agri-

cultural Advisory Service was set up. This service will in due course employ some 2,000 officers. Subsequently, an Agricultural Land Service was instituted with a much smaller complement and in this connection it will be appreciated from previous remarks that many landowners already have the service of professional private land agents. It is through these two services, the N.A.A.S. and the A.L.S. (incidentally, the A.L.S. performs other duties, notably in connection with the management of land held by the Land Commission and with the provisions of smallholdings) working in close co-operation with the County Agricultural Executive Committees that technical advice on farming and estate management problems is obtainable at no direct cost to farmers and landowners.

In relation to equitable tenancy arrangements, the position therefore now is that by way of a contract of tenancy between landlord and tenant, and by way of legislation which can be invoked to provide for any deficiencies or remedy any unfair provisions in a contract of tenancy, or to operate between the parties in default of a contract, fair terms on all matters between landlord and tenant can be assured, and the state can be well served in the interests of food production. Some of the practical effects are that the tenant is afforded a very secure tenure, in that, broadly speaking, he cannot be turned out of his farm if he is cultivating it in accordance with the rules of good husbandry. He can, if he so desires, have his rent adjusted from time to time (not more often than every three years) by reference to arbitration; that is, by the assessment of an independent arbitrator who is a professional valuer, appointed by the Minister of Agriculture from a specially selected panel of valuers. A tenant can carry out improvements adjudged to be reasonably necessary for

the proper working of the holding and secure adequate compensation for them, from his landlord, when he quits the holding. He is also assured when he quits the holding of adequate compensation for matters which we call tenant-right, and which comprise harvested and growing crops and tillages left for the benefit of an incomer and also for the unexhausted value of pastures applied to the land, and the unexhausted manurial value of feeding stuffs consumed on the holding. The landlord has the same right as the tenant to refer to arbitration the question of what rent should properly be paid for the holding and also to claim on the termination of the tenancy for any dilapidation or deterioration to the holding due to default by the tenant.

It is not practicable in a paper of this length, if indeed it is appropriate to its

title, to touch upon many aspects and activities designed to assist the agricultural industry, but perhaps I should mention that loan facilities exist for both farmer and landowner apart from those provided by the banks, and that substantial grants and aids have been, and are being, made by the government in relation to such matters as the Attested Herds scheme, Drainage and Water Supply, Hill Sheep and Cattle Subsidy, Hill Farming Grants, etc. In this paper, therefore, I have endeavored to concentrate on the land tenure and tenancy aspect, at the same time conveying some idea of the agricultural background which influences these matters, and I can only hope that to some extent I have succeeded in putting a comprehensive picture before you.

Social Welfare and Land Tenure in the Agrarian Reform Program of Venezuela†

By GEORGE W. HILL, GREGORIO BELTRÁN,
and CRISTINO MARIÑO*

"One of the great hopes of the country has been to be able to develop a program that will lead to the gradual improvement in the way of life for its rural people, and to the establishment of the rural economy upon a solid foundation."

THUS reads the first paragraph of the preamble in the decree by which, on June 28, 1949, the Military Junta of the government of Venezuela created the National Agrarian Institute. The preamble together with the discussion (*proyecto*) which preceded it, suggest the historical origins of the contemporary agrarian problems and equally as clearly imply the social remedies if the agrarian reform is to accomplish its purpose.

Venezuela's large impoverished rural population and the low productive output of its agricultural and livestock industries, which had reached an unprecedented low point at the outbreak of World War II, are the inevitable result of the chaotic history of its land tenure system. To overcome the handicaps which present-day rural Venezuela has inherited calls for a deep-ploughing agrarian reform, and because the land problems are so inextricably tied into complex human problems, the execution of the agrarian reform calls for the utmost social skill in its long-range planning and year-to-year functioning. There follows a historical analysis of the problem and the social

and economic forms which some of the remedial measures may assume.

I. Evolution of the Land Tenure System

In order to evaluate a complex economic, sociological or historical problem, one cannot be satisfied with examining isolated facts, but should attempt to analyze and interpret the accumulation of social, historical and economic circumstances that have determined it. Therefore, when speaking of land tenure and of the different ways in which agricultural property has been acquired in Venezuela, it is necessary to start with colonial times and consider the social customs and economic systems which Spain contributed with the discovery of the New World.

Transplanting Old World Patterns to the New World

It is well known that the discovery of the New World was unexpected even to the Spaniards. Columbus and his men sailed for the Far East looking for the spices which Europe could not then obtain because of the Islamic control of the Middle East. The result was that upon reaching the lands of the New World they did nothing but marvel at their exuberance and to take possession of everything in sight. A few years were enough to convince Spain that she had acquired a new and unexplored continent, and it was then that Columbus, the great Admiral, returned in 1497 with authority to distribute the new land among the discoverers. But the fertility of the land, although apparent, was not

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enough; it did not attract new settlers. Therefore, Columbus, seeking a way of obtaining greater profits for himself and his companions, began to impose on the Indians a tribute, which at the beginning consisted of gold, cotton, and staples, but soon was to be converted into forced labor.

In this fashion, the first *repartimientos*, which were nothing more than a transfer of Spanish customs according to which peninsular lands were distributed among the settlers, came to constitute the *encomiendas* which combined the factors of land and labor. The *encomienda* was an institution designed to protect the Indians and to indoctrinate them in the Catholic faith, but in reality it served only to enslave them. The *repartimiento* was, then, the initial form of land tenure in America. Parallel to it, individual ownership acquired by purchase either from the *conquistadores* already established or from the crown, and more likely through occupation, was to grow and develop. The land acquired through the *repartimientos* in a few years was to become a personal inheritance of the *conquistador*, and it, together with that acquired in any other manner, purchase or occupation, would constitute the ownership that in time attained truly amazing characteristics. This was the system which created in Venezuela a class of territorial nobility, a veritable aristocracy, based on the ownership of large tracts of land, which day by day gained a stronger hold on the land and on the economic power it assumed, until by the 19th century they considered themselves to be lords and masters of the national destiny. This new class could also be expected to fight the Spanish Crown until national independence was secured.

However, many years passed before the Spaniards realized the economic value of the land. The first Spaniards who came

to America did not have any ideas of permanent settlement and much less of cultivating the land. The *conquistadores*, for the most part, were men of the common people, lacking in resources, or they were the younger brothers of noblemen, but both types had a common purpose and objective: to become rich and to return to Europe as soon as possible. Spain itself did not seem to have any more interest in agriculture than her colonial adventurers. This was a time of mercantilism; the accumulation of the greatest amount possible of gold and precious metals was the aim. Spain demanded nothing more of her envoys. Money and gold were to be brought back at all costs.

Unfortunately, Venezuela was not in the same situation as the mineral-bearing countries, Peru and Mexico. The search for El Dorado was fruitless and only a few unproductive veins of gold were exploited. Because of this the migration to this country was small. It should also be kept in mind that the climate was not hospitable, that Spain was placing many restrictions on immigration to the continent, and many other factors, direct or indirect, influenced the development of Venezuela's rural economy.

Early Venezuelan Colonial Land Patterns

Venezuelan history begins with the *conquistadores* having to resign themselves to settlement on the lands that they had acquired. Farmers were few. In 1520, Father Bartolome de las Casas attempted to bring peninsular farmers to Venezuela. He formed an expedition which unfortunately did not succeed because the members got only as far as Puerto Rico and chose to remain there. On the other hand, the majority of the Indians had been exterminated, and the few that remained were not willing to work in the fields and they fled before the possibility

of being caught in the harsh conditions which the Spaniards had created, which amounted to virtual enslavement, although, in theory, they were to be incorporated in the *encomienda* system. Under a plea of protecting the Indians, Father Bartolome obtained permission from the Crown to import Negroes. This move gave no protection for the Indians, and benefited only the landowners. It was in this period that land ownership began to be strengthened, when the descendants of the Spaniards began accumulating large tracts of land because they could not count on the necessary imported Negro labor for its exploitation. An indication of the importance that was being given to agricultural land ownership during the middle of the sixteenth century is the discussion by the town councils of the right of assignment of lands. Because of this attempted usurpation of power by the local councils it became necessary for the home government to issue a royal decree in 1573 reserving that right for the Crown. However, the difficulty of communications with the Mother Country made it necessary the following year to grant the *audiencias* or courts the right to assign lands and the solving of problems relating to them. Thus, in this manner legal control of land transactions first passed into colonial hands.

Aside from individual ownership, we find two other types of ownership: the *ejidos*, or the common property, of the city government, intangible and respected, and the *ejidos*, assigned to the Indians according to law. The latter land rights of the Indians were never respected and served the conquistadores and their descendants as a source of land increase to this group.

What happened in the northern part of the hemisphere, where the immigrants came with their families, settled, and worked the land themselves, or at least

had men of their own race doing the labor, did not happen in South America. Here, on the contrary, a few men enjoyed large territories which they might supervise regularly, but whose labor and cultivation was in the hands of classes devoid of all rights, sunken into slavery, servitude and ignorance; classes, which not having any freedom, could hardly react against the system. It is evident then that instead of becoming weaker, the *latifundio* continued increasing day by day, and that at the end of one or two centuries the aspiration of those who came to South and Central America was not only to find rich mines, but also to acquire large plantations of cacao, indigo, cotton, etc, which would yield the desired profits.

Such a situation remained unchanged in its foundations. There was nothing capable of changing it. On the contrary, all the regulations, all the circumstances worked in favor of the status quo. The Crown did not allow free trade, and reserved for itself an absolute and complete monopoly of the colonies through the House of Trade of Seville. It made no monetary investments in favor of colonization; on the contrary, taxes increased in order to enrich the mother country. Immigration, as we have already stated, was subjected to many restrictions and hindrances. Communications with the peninsula were sporadic. In 1728, Philip V drew up a contract with a group of Basques who formed the *Compania Guipuzcoana*, and granted them a monopoly of commerce and exchange with the province of Caracas and authority to combat smuggling. The contributions of this monopolistic company to Venezuela, whether beneficial or not for the colony, have been and still are being discussed. What can be stated without a doubt is that, because of the company, traffic and commerce was

regularized between Venezuela and the Mother Country, assuring a market for the producers and resulting in a stabilized economic situation. In 1776, the creation of private commercial companies—both Spanish and foreign—was authorized, provided they presented to the consulate of Cadiz an authentic copy of their charter and thus, in fact, ended the monopoly of the Basque trading company. The landowners, who had looked upon the company with disapproval, found their aspirations for trade, free and with greater profits, finally realized.

The landowners, now masters of economic and social power and believing logically that these lands which their ancestors had conquered and owned for three centuries belonged to them by right, were not willing to have the government of the colony in the hands of representatives of the Crown and to have the peninsular Spaniards occupy the best political positions. Moreover, the ideas of the European encyclopedists began to have their effects. The surge for independence was nearing a reality.

Social Forces and War for Independence

The situation created in Spain by the Napoleonic conquests gave the awaited signal and thus the 19th of April of 1810 was constituted the supreme assembly "Preserver of the rights of Ferdinand VII," nominally, but along with it the Capitan General of Caracas was sent back to Spain. We find ourselves, thus, before the first step of independence. Who had brought it to a head? The *mantuanos*,¹ or the white men born in America, were the only ones who had the right to take part in civic government, and who, under an apparent submission to the Spanish Crown, could hide their

separatist feelings. Thus, they were able to initiate with success the movement of independence, a movement which the lower classes could not have initiated. Any possible move in that direction on their part would have been interpreted as rebellion. Besides, their attempts would not have had—nor did they have—the support of the economically-dominating classes, classes who looked with fear on any movement which might endanger their properties and privileges. In fact, the reaction of the landowners to the first attempts at independence by the lower classes was to offer help to the Crown's representative. It is possible that the *mantuanos* did not consider the lower class movement opportune. It is difficult otherwise to understand the motives of this upper class which had defended its racial purity by surrounding it with all social prerogatives, building an impregnable class wall around itself.² Likewise, it would be difficult to understand how this class could be the initiators of a movement of independence; they, the same who were going to offer political and social equality to all citizens and who, like equals, were going to fight at the side of the half-breeds, the mulatto and the negroes. All fighting for one idea: a free republic, sovereign and independent.

A few years more had to pass, however, before achieving the union desired by the liberators and repudiated at first and distrusted by the common people.

² The rigid class structure, imposed by the law of 1571, was still in operation at the time of the rebellion. This law stipulated in fact that "no free negress, or slave, or mulatto could wear gold, pearls, or silk; but if the free negress or mulatto were married to a Spaniard she could wear gold and pearl earrings and a necklace, her skirt could be hemmed with velvet; she could neither wear nor carry a mantle made of crepe or any other material, she could only wear a short cloak that would reach down to her waist, otherwise she would suffer the penalty of losing her jewels, her silk dresses and her mantle." (Quoted by the Venezuelan historian, Jose Gil Fortoul, *Historia Constitucional de Venezuela*. Editorial Las Novedades, Caracas, 1942, 3d. Ed., Vol. I, p. 78).

¹ Since, by law, only direct descendents of full Spanish parentage were allowed to wear mantles it became the custom to refer to the wearers of the mantles as "mantuanos"—the highest social class in colonial Venezuela.

The fact that the leaders of the movement were the same who supported the economic and social power of the province, the same—who as we said before—opposed any attempt at equality of classes, caused the distrust and at other times the indifference with which the popular masses answered the call to arms. Furthermore, the lower classes preferred to defend the Spanish sovereignty than join a movement which seemed of doubtful benefit to them, and to have to fight by the side of these same landowners at whose hands they had suffered generations of racial and class discrimination. In fact, General Tomas Boves, the Spanish leader in the *llanos*, exploited this class feeling when he pronounced the death penalty among his troops on all the white *criollos*³ who persisted in racial persecutions, and he offered land, a real stimulus, to the commoner who would join his royal band. In fact, he decreed that all the property of the *mantuanos*, killed at his order or that of his lieutenants, should pass as property to the soldiers. This policy of Boves—a policy which General Paez, the rebel leader, was to follow later in the plains—worked against the success of the independence movement because of the mistrust between the popular masses who formed the bulk of the royalist forces and the *mantuanos*. Gradually, the popular masses realized the true road that they should follow. They saw that independence was not “another link in the royalist chain;” they realized that the actions of the liberators were founded on good intentions, that they fulfilled their offers and that to continue fighting on the side of Spain was against their real purpose.

A further factor which drew the masses away from the royal army

was the joining of the rebellion by General Paez who was a recognized leader of the *llanos*. Furthermore, Paez acted with foresight that others had not had when he found himself isolated in the plains of Arauca and, alone in a hostile region, understood that the way of obtaining the support of the plainsmen was to offer them lands seized from the Spaniards. This offer was first limited to the lands of the state of Apure and later became broader, extending to all lands taken over by the rebellion. When Paez joined the army of the Liberator, he felt that his offer still continued to be the best way to win the support of the people; he presented this to General Simon Bolivar, who approved it and with slight modifications made it applicable to the whole army. The Liberator even proposed in 1817 the so-called “Law of Division,” but it was never put into effect. As a token of recognition of the lands that would later be given them the men were given a bonus.

Struggle for Land Reform Persists

Struggle after struggle, defeats and victories, led to the final victory and the consolidation of the independence. But in the meantime what had become of the territorial riches of the colonies? Dwindled! What real changes had the land tenure system undergone? None!

This can be explained in various ways. *One*, the state of war itself, the insecurity, the constant ravages of the regions which passed from one group to the other. No one could identify himself in any satisfactory way with the land or its exploitation under these conditions. *Two*, the leaders of the movement of liberation were for the most part precisely those who owned all the territorial property. *Three*, the ideas and purposes of the revolution, because the landholding leaders had no other purpose

³ A white *criollo* is a person born in Venezuela of Spanish parents.

than to obtain independence; they were fighting for a greater voice in the rule of their own destinies. *Four*, except for the incentive of the plainsmen who followed Paez, there was no economic motive in the battle for independence. *Five*, there existed no organized industrial or bourgeois class, capable of effective self-expression. Even though the mass of the people had the desire to own land, to enjoy its benefits and to reach the level of the landowners, they lacked the strength, the preparation, the capacity, and education necessary to work toward their objectives. This is evident if we appreciate that the education of the negros, mulattos, etc. did not go beyond a rudimentary knowledge of language and Christian doctrine. They were permitted to carry on commerce only on a minor scale and to engage in trades considered dishonorable for the noblemen. *Six*, although the differences in class and racial privileges had been ostensibly abolished, slavery, a system preventing thousands of men from being free and from owning land, continued unchanged because the Emancipation laws that were passed were not effective enough to abolish the practice.

The system of land tenure of the colonial period passed over to the new republic without undergoing any change in its foundations. True, many of the rich families were ruined, but their lands fell only into the hands of other large holders. The system remained the same: large expanses of land in the hands of a few and a large population that was landless. Only few of the mixed bloods were fortunate enough to acquire property.

Nevertheless, the masses who made independence possible demanded the fulfillment of the promises made to them. They had their war bonuses but they wanted to cash them for the lands promised

them. Dissatisfaction was general when they could not obtain what they desired, and the situation grew more desperate, so much so that the Liberator recommended the matter to Congress. The majority of the army decided to sell their bonuses which were offered for as little as 10 percent of their value, a circumstance which was advantageous to Paez and other leaders, as well as to general speculators. Through this change of events, new powerful landholders were created. In August of 1830, Congress voided the confiscatory laws of 16th of October, 1821, and 30th of July, 1824, which had been passed against the subjects of the Spanish Government. The new laws assisted the legitimate successors of property to perfect titles. It added also that from then on there would be a stop to the adjudication which was decreed through the law of the 28th of September of 1821 and through the decrees of the 7th of March and 19th of June of 1827 to the principal creditors and holders of military bonuses, and that the property rights and actions which were confiscated and not assigned either completely or in part, be submitted to public auction for their worth or whatever was offered for them, receiving in payment credit documents of a military nature. Through these decrees many lands returned to their former owners, but the sale of military bonuses also offered a large number of speculators the opportunity to obtain large tracts of land at low prices.

A historical opportunity to end the system of latifundia, or at least to grant lands to the dispossessed classes, was lost. The process of land concentration became more and more acute. The Secretary of the Treasury, in his report for the fiscal year 1856-57, complained of the small revenue that the government enjoyed from the sale of land at very low

prices under the system and how with the land acquired, varying from ten to sixty square leagues, the concentration of land wealth in the hands of a few had been made easier. He stated, and justly so, that this situation, aggravating the already serious conditions of the masses of landless settlers, in exchange for a small number of opulent landowners, would bring about many calamities, and that the resulting economic inequality would have a direct and unavoidable influence on the political and economic progress of the country.

The freedom of the slaves, decreed in 1854, did not change the land situation: those who previously had been slaves came to be free citizens politically but not economically, since the majority were compelled to continue working on the haciendas and plantations of their former masters in exchange for unsatisfactory working conditions and a pittance in salaries.

When the Federal Revolution broke out, the popular masses joined with the hope of changing the political, social and economic outlook of the nation. But once again history repeated itself, because when the struggle was finished and the Peace of Coche was signed in 1863, the landless were in the same situation as before with respect to land. Only in some of the social inequalities did they succeed in changing the old aristocratic molds of the upper classes to open the way toward equality by the abolishment of class restrictions.

Latifundism Increases in 19th and 20th Centuries

The concentration of the land continued unabated through the 19th century and its effects were felt throughout the whole national economy with a serious decrease in foreign commerce. Civil wars continued, revolution was waged; constitution succeeded constitu-

tion, new laws nullifying others only weeks or months old were continually passed. In the meantime, large areas of land remained abandoned; small areas received only haphazard cultivation. With the military occupation of a region came poverty, the destruction of plantations, and the extermination of livestock. The landowner seldom lived on the ranch; he hardly visited it. From Caracas, and even from Europe, he was satisfied with receiving the small or large profits that the lands produced. He invested nothing on the upkeep of his farms, which naturally were subjected to the most primitive form of exploitation, and constant diminishing of fertility. Mortgages were increased by the absentee owners: plantations exchanged at low prices, but little of the property was passed on to the landless. On the contrary, it was concentrated more and more in the hands of a few. The landless farmer, squatter or occupant was compelled to live in insecurity, poverty, ill with malaria and other diseases. Naturally, he could not be very much interested in improving his crops, since he knew that whatever he did to improve the farm would not be acknowledged by the owners, and that whether the crop be good or bad he would have to pay exorbitant rent or hand over the greater part of the product he had attained with his work and his primitive methods.

During the regime of General Juan Vicente Gomez (1908-1936) the concentration of land reached its maximum; from the very first he coveted the richest lands which systematically became his. The fact that Gomez did not have to pay his laborers, since most of them were army recruits and many were political enemies, increased his reputedly fabulous profits, and the poverty of the small farmer continued to increase under this unequal competition.

With the discovery and exploitation of Venezuela's immense oil riches, the aspirations of the rulers, of the politicians friendly to the Gomez regime and of the classes possessing economic power, were changed. It was no longer only agricultural land which would produce wealth. Industry began to develop, and capital was accumulated in the cities. Subsistence farmers and laborers abandoned the land in search of better wages. The profits obtained by the landowners with oil revenues were not reinvested in the land, the concentration of land with the advent of oil became more extensive with its natural consequences. Agriculture was abandoned, and the production of crops decreased while the poverty of the mass of small farmers increased.

The results of the 1950 agricultural and livestock census are not yet available. Therefore, we can use only data compiled from the census of 1936. At that time no census was taken of public and communal land (*ejidos* and *baldios*), giving statistics only of private property which numbered 69,777 with a total of 218,496 farms or "*explotaciones*." That census also shows that 90 percent of the land was in the hands of very few landowners, five percent of them to be exact, and that the property of these landowners for the most part exceeded a thousand hectares, proving thus that there existed in the country a large concentration of land holdings, much larger than that which exists in other countries suffering from the same problem.

All of the several governments since 1936 have stressed the need for an agricultural reform, but only with the passage of the Agrarian Law of June 28, 1949, has appreciable progress been made in the program. The historical processes of the last four-and-one-half centuries, described in detail above, have left their mark on present-day land

tenure relations in Venezuela. Venezuela is in the grip of the economic and cultural patterns forged in the preceding centuries of its colonial and national existence. In a true sense, only now has there been ushered in a genuine social and economic revolution—bloodless to be sure, but this marks the beginning of efforts toward bringing economic prosperity and social equality for the rural Venezuelan.

II. Social Welfare and the Agrarian Reform

Genesis of Social Welfare

Welfare, as a general term, refers to the conditions of society in terms of its well-being. In a specific sense it refers to those acts and procedures which are adopted to assist in the correction of social and economic problems, the alleviation of poverty and unemployment, the care of the sick and the blind, the care of children and the aged. In short, social welfare is concerned with the eradication of conditions which make for personal and social disorganization.

Throughout the world the intervention of government in the field of social welfare is a relatively recent innovation. The Scandinavian countries have one of the longest histories of modern state-supervised social welfare programs; the so-called "Bevan Welfare Plan" in England was preceded in comprehensiveness by the social welfare programs of some of the British Dominions, especially New Zealand. Only after the great depression of the 30's, heralded by the stock market crash of 1929, did the government of the United States for the first time in its history take part in the granting of public assistance and relief to its citizens, which undifferentiated emergency program has now evolved into a comprehensive social welfare policy. Symptomatic of the growth of public awareness

and responsibility of the federal government in the United States in social welfare were the recent attempts made by some of the Truman administration to create a new Cabinet post, that of Secretary of Social or Public Welfare.

Social welfare has its roots in human needs and, as a consequence, the institutions which lie closest to the individual have also been the agencies of social welfare since the dawn of history. The family was the primitive man's welfare organization, and later the great family or the clan helped minister to the needs of its members. In backward areas of the world the family or the clan are still the only source of help when an individual suffers need.

Charity, or alms-giving, is a practice found in all the pre-Christian literature of the world. The Christian church was not reticent to engage in organized welfare work. St. Gregory, it is recorded, divided Rome into districts and parishes in 590 A.D., and placed a Deacon in charge of each district to distribute alms among the poor and the widows, to assume charge of orphans, and even old people. The history of the monasteries down through the Middle Ages is replete with accounts of their relief and welfare activities.

The Welfare State

The responsibility of the modern state for the welfare of the individual dates from the passage of the English Poor Law, enacted in 1601 during the reign of Queen Elizabeth. This law authorized each parish to raise funds by taxation or by gift to provide means for the care of the needy. The national government as well as the public treasury were part of the program, but responsibility of administration was placed squarely upon the local governing bodies. The "Elizabethan Poor Law," as it became known,

spread over the English-speaking world and even today many rural areas in North America have their "poor laws" and "poor house commissioners."

With the advent of the Industrial Revolution and the rise of our great cities resulting in large concentrations of population, responsibility for social welfare had to be assumed by the new industrial class of employers. Mass unemployment was common; malnutrition resulting from inadequate earnings and ineffective distribution of the available food supply, diseases and epidemics brought on by over-crowded living in urban slums lacking even the rudiments of sanitary and hygiene facilities, industrial accidents, drunkenness and crime, and the other corollary forces of social disorganization, compelled industrial leaders to create welfare agencies. A system of community welfare agencies and private philanthropic organizations grew out of the industrial revolution, especially in its later mass production years.

It has been only in the last few decades of the present century that the broad aspects of social welfare were assumed to be the responsibility of national governments. By then, life had become too complex and the problems of society too large to allow the family, the church, the rural poor relief commissioners, the urban Community Chest, or private philanthropy to cope successfully with the problems. The reality of the "Welfare State" is now an accepted fact in most advanced countries and, notwithstanding the emotion with which some attack the concept, it simply means that the most-inclusive organization of society now admits and accepts the responsibility for the welfare of its individual members. In this sense, the state does not in any way assume more responsibility—more complex, to be sure—than did primitive man's earliest welfare organization, the

family. For the primitive man, his family was his most inclusive social organization, his clan was absolute. The state has now assumed the role for which the family previously functioned.

In by-gone years alms-giving was synonymous with social welfare and, by and large, alms-giving was adequate to meet welfare needs in simple societies. Today, social welfare is a combination of many factors: it includes the relief of poverty and unemployment; it assumes the right of all to better health, better diet, and better housing and proceeds accordingly; it embodies the abolition of illiteracy, the improvement of means of communication, more efficient production, more consumers' goods; it assumes the public solution of problems over which the individual has little or no control. Each year sees governments all over the world not only increasing their activities in social welfare, but each year sees the means becoming more and more specialized to meet the needs which the ever-increasingly complex urban society creates.

Rural Social Welfare

Social welfare in the rural areas, even in the more advanced countries economically, is not as segmentalized or differentiated as among urban people: the difference is due to the basic structure and social organization of rural society. Rural society is a closely-knit organization with the family as the basic unit around which the organization revolves. Around the family grow its corollary kinship groups, its neighborhoods, and villages.

Social welfare programs in the cities are built around the needs of the individuals who make up the highly-structured society of urban areas; thus, for urbanites, there are special programs for the unemployed adult worker, the mother, the child, the old person, the

cripple, the mentally handicapped, the drunkard, the criminal, etc. Social welfare activities in the rural community are more concerned with the environmental aspects of group living than they are with the individual; hence, rural programs tend to be concentrated upon problems of sanitation, water supply, housing, adult education, communications, soil erosion, etc. It has been assumed that, once the defective environmental factors are corrected in which rural families, rural neighborhoods, and rural communities are found, the cohesive force of rural social organization will be able to assume the welfare of its individual members. By and large, programs based upon this assumption have been found effective.

Economic activity assumes different forms in urban and rural societies. In rural society it is integrated around the family, whereas it revolves around the individual in urban society. In the rural community there is only one enterprise: the farm, and the way this enterprise is managed, makes of the farm, the home and the family one integrated unit. The industry is sheltered in the same house in which the family lives; a single group of buildings shelters the livestock as well as the family.

Inadequate living facilities and a low level of living are both a cause and effect of poor production on the farm, but little can be done to improve either without increasing the family's productive income. Hence in the rural community social welfare is closely associated with economic development programs which will increase the productivity of the family's economic base, or its farm.

In rural Venezuela, which has been retarded for so many generations, the welfare and production programs become almost one. Only a true agrarian reform program can be an inclusive rural welfare program. Only an agrarian re-

form program has the authority, the resources and facilities to create and to administer a comprehensive rural development program, including parcelling and distribution of land, restoration of soil fertility, building of farm-to-market roads, reforestation and drainage, eradication of disease, redistribution of the population, improving the educational and farm-family managerial capacity, and other factors which are involved in the man-land ratio.

Inclusiveness of the Agrarian Reform

A frontal attack all along the line, as above outlined, is long over-due in Venezuela's under-developed rural areas which have suffered from so many centuries of neglect and unequal opportunity. To a great extent the current problems of rural Venezuela resemble in their origin and pervasiveness those which have obtained in the Old South and the Appalachian highland of the United States. It was a combination of historical processes which created the antisocial land tenure system and which, in turn, led to the family poverty, disease, and ignorance, the land erosion, single-cropping practices, and low farm productivity, and the resulting socio-cultural isolation of the victims in this problem area of the United States. Low interest farm loans were not enough to rehabilitate this people, neither could they continue to be carried on the emergency relief or public assistance rolls. They needed a program that could dig deeply into the subsoil to get at the roots of their social and economic maladjustment. It had to be a program that could change basic attitudes and habits of living, to make for this people a new way of life. It was for this people that the unprecedented rural social welfare programs of the Farm Security Administration and the Tennessee Valley Authority were specifically designed in the middle 1930's.

Venezuela's agrarian reform likewise has to be more than alms-giving or public relief; yes, it has to be more than a land program—it is an all-inclusive rural welfare program designed to give each rural Venezuelan an opportunity to share a way of life which the events of history have heretofore not permitted.

That population considerations are basic to any agrarian policy and in all countries, should be axiomatic. Population numbers are in a constant state of flux and demographic phenomena affect land use, especially on the demand side. But there are other considerations in addition to mere numbers of people. There are rural-urban migrations which have in recent years altered Venezuela's population landscape in drastic fashion. There are qualitative considerations as well, such as disease, malnutrition, and illiteracy—all of these influence the productive capacity of the farm family and are factors of primary concern in an agrarian program, and require frontal attacks for their solution.

Education likewise is the foundation upon which an agrarian reform program must rest. Educational activities in the agrarian program assume many forms, not the least of which is the attempt to change adult behavior patterns, so that antiquated farm and home methods of the rural Venezuelan will be replaced with modern farm and home-management technique. There is no royal road to shortcuts in education; on the contrary, the transition from a machete-and-oxen economy to one of mechanized farming, if successful, must be an evolutionary one.

Opening up new lands through land clearing, drainage, and irrigation; clarification of titles and parceling of currently idle lands provide the physical base of the agrarian program. Through a careful family selection process, immigrants and nationals find their way to

new lands. Credit for housing, the purchase of machinery, seeds, fertilizers and insecticides, signal the start of actual farming operations, and supervision in the preparation of first annual farm plans and guidance in home-making help to assure a successful start in farming and living. Construction of farm-to-market roads, and of storage facilities, and modernization of marketing processes complete the agrarian cycle from the farmer and his land to the urban consumer. Medical services and hospital facilities, a community school, a recreation center and a church make for full community living. For many rural Venezuelans this is their first opportunity to enjoy community facilities which urbanites have long taken for granted; and for many European refugees it means the beginning of life as free people in a new country.

Because the problems are complex and because their solution impinges on all of the social, economic, and political beliefs and institutions of the people, the program must needs be drafted on a long-time prospectus. Fortunately, Venezuela is able to proceed on a long-range basis, whereas most countries with similar problems lack the land and the natural resources to effectuate a healthy balance between the people and the resources. Venezuela's known and foreseeable resources in land, petroleum, minerals, and water power provide economic opportunity for its existing population and for a fair share of people who are now surplus in other less fortunate regions of the world. While a large share of the existing population does not enjoy a standard of living which the nation's resources can provide, the country does not need to fear a scarcity of the potential to bring about the necessary adjustments, and its agrarian reform program

is evidence of its concern to raise standards of living.

Obviously there is no quick way to develop an agrarian policy that will assure maximum production and an optimum standard of living for all of the rural population. The faulty land tenure system, archaic production methods and marketing systems, and the poverty and ignorance of the large landless population are too deeply entrenched in tradition to hope for overnight cures. However, the goals can be achieved with greater alacrity and with more positive results if the Agrarian Institute functions under a co-ordinated and well-planned policy.

Planning, in a democracy, does not mean regimentation. It is the orderly marshalling of scientific evidence to enable a program—a major societal undertaking in this instance—to be guided toward a recognizable and socially desirable goal. In its long-range aspects the agrarian reform will aim at certain general goals of food production, population distribution and land development in the major demographic regions of the country.⁴ The Agrarian Institute will also have short-range targets or, more correctly, it will develop a series of short-range goals which can be achieved from year to year and which can be expanded and/or contracted as the social welfare and food-production needs dictate. Experience, as it is gained from year to year will temper immediate activities. Annual achievements will per-

⁴ To achieve the general goals required by the needs of the country the program of the Institute will be coordinated with production activities of other federal agencies, including the Venezuelan Development Corporation, the Agricultural and Livestock Bank, and the Ministry of Agriculture and Livestock. Each of these agencies has specialized production programs. The 1951-52 budget of the Development Corporation, for example, carries an appropriation of \$6,400,000 for an increased rice and corn production program, \$9,600,000 for sugar, and \$3,085,000 for livestock.

mit the long-range plans to be under constant scrutiny so that at all times the general goals of the agrarian reform will be consonant with the basic needs of the people of Venezuela. With planning and

execution of its activities on a high level the National Agrarian Institute has promise of giving Venezuela "a program that will lead to the gradual improvement in the way of life for its rural people."

Some of the Problems of Land Tenure in Eastern Europe†

By MICHAEL B. PETROVICH*

BETWEEN the Germans and Italians in the West and the Russians to the East there live some eighty million Poles, Czechs, Slovaks, Magyars, Rumanians, Bulgars, Yugoslavs, Albanians and Greeks. They occupy a vast area which defies generalization. Probably the most useful overall geographic designation devised for this part of the European continent is the German expression the *zwischenland* or the "in-between-land." In present official terminology the countries of Eastern Europe are styled "people's democracies"—a term which establishes them as a political and economic in-between land as well since they are considered to be, in a transitional phase, "on the road to socialism." The even more descriptive designation, "the iron curtain countries," testifies to the fact that all of these peoples are now committed to a single broad political, social and economic way of life.

Neither geography nor history points to the unity of this highly complex region. Geographically Eastern Europe is divided into three distinct areas: the Baltic, the Danubian, and the Balkan. Each of these areas is in turn subdivided into physical zones which cut across political boundaries and often dissect a single small country into many parts. Marked differences in climate, soil and topography impose upon the inhabitants of Eastern Europe correspondingly different means of sustaining life from the good earth and the bad.

The historical differences which rend this region are even more profound. The

whole area is a maelstrom of languages, and religions and ethnic strains among which the Slavs, the Magyars, and the Rumanians predominate. The soil of these peoples is rich with the blood which their Russian, German and Turkish imperial masters have shed there in centuries of conflict. The minds of these peoples are scarred battlefields on which the conflicting cultures of West and East have fought bitterly for a millenium. And whether the dominant rule was that of West or East the East Europeans generally suffered from the same institutions: political authoritarianism, rule by the bureaucracy and army, and the economic oppression of the peasant masses.

Despite these geographic and historical differences, Eastern Europe is bound by a predominantly agrarian way of life. With the exception of certain industrial areas in Bohemia, Silesia, southern Poland, and the oil fields of Rumania, Eastern Europe is overwhelmingly peasant Europe. It is inescapable, therefore, that the land problem in its broadest conception is the central question which besets this region. It is on its ultimate solution that the entire political and social structure largely rests.

In our time the forces of Communism have undertaken the gigantic task of solving the agrarian questions in Eastern Europe. Like their predecessors, the present Communist leaders are beset by the same basic problem: there are more humans in Eastern Europe than the soil can presently support. Sometimes this problem is called "over-population" and sometimes "low productivity of the soil," but both amount to the same quandary.

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It would be grossly unfair to accuse the post-World War I succession states of indifference to the plight of the peasantry or even failure to alleviate their lot. With varying degrees of success, all of the East European governments which came to power in 1918 carried out land reforms which brought some relief to the population. Yet in almost every case and for a variety of reasons, the reforms were inadequate. Where land was actually distributed the reforms grew out of political and national considerations rather than social and economic policy. In most cases the land distributed belonged to the dispossessed foreign landlords—largely Germans and Hungarians. Newly acquired frontier provinces were usually colonized by the new dominant nationality at the expense of local minority groups. For example, Poles were given preference over White Russians in Eastern Poland, Serbs over Albanians in Macedonia, and Rumanians over Bulgars in Dobrudja. In the two countries where the existence of large estates demanded the most drastic reforms—Poland and Hungary—despite ambitious programs the Esterházy, Festetics, Radziwill, Potocki and other families as well as the Roman Catholic Church were still permitted to own huge estates. What distribution was carried out was actually not rational from a purely economic point of view. Large land units farmed with modern methods on mass production lines would have certainly yielded a higher return than parcelling the land. Nevertheless social and political factors made it desirable in most cases to attempt to satisfy the land hunger of the individual peasant families.

Where distribution was not carried out in sufficient measure, emigration of the peasants to foreign lands such as the United States continued to provide some outlet, though emigration can hardly be

called a solution in any social sense. A much better method would have been the absorption of the peasant population by industrialization, but absence of capital, competition from more advanced countries and other reasons usually militated against the establishment of local industries. Other measures had to be considered: technical education, intensive cultivation of noncereals, development of transportation, public works programs, agrarian cooperatives, subsidies and credits, cheaper farm machinery. It was through such means that the Danish farmer was able to produce three times as much on the same acreage as the Yugoslav. But Yugoslavia, Bulgaria or Rumania was not Denmark. Other considerations took precedence over the welfare of the peasant.

Despite the gains made between the two World Wars, the reasons for failure were many. In the political arena, those peasant parties which were most interested in improving the peasant's lot and most representative of the peasant's wishes were suppressed or out-manuevered by the new ruling groups. Peasant party leaders such as Stamboliskii in Bulgaria, Maniu in Rumania, Radic in Yugoslavia, all suffered violent death or persecution in their time just as they or their successors are suffering under the present Communist regimes. Led by other ambitions and fears, most governments of Eastern Europe were more interested in garrisons than agricultural schools. Too little of the state budget went for rural agricultural stations, health service, farm implements, or farm credits. What co-operatives the peasant parties sponsored were discouraged by the government. The peasantry was burdened with taxes to pay for building cities, for theaters the inside of which they rarely saw, and for the salaries of bureaucrats who did little for

them and frequently made life more miserable. Government subsidies often went to infant industries whose products were too expensive for the moneyless peasant.

Had local political and social conditions been more favorable to the peasant, the East European land problem might have been alleviated. It is doubtful, however, whether it could have been solved with the best of intentions on the part of the local governments. Just as the peasant was discriminated against by other classes in his own country, so the peasant countries of Eastern Europe were discriminated against by a capitalist world. One must remember that in Eastern Europe an industrial Bohemia is an exception while agrarian Hungary and Yugoslavia are the rule. Imperialist ambitions combined with an inexorable economic law to make the countries of Eastern Europe the virtual colonies of Germany and Italy years before Hitler and Mussolini physically invaded their eastern neighbors. The agrarian problem in Eastern Europe, then, is not only a local problem but an international one. It poses a basic question which is far from peculiar to Eastern Europe: What is an agrarian country to do in order to exist as an independent, democratic nation and to enjoy a decent standard of living in the face of the economic supremacy of industrial countries?

That the largely agrarian countries of Eastern Europe fell before the onslaught of their neighbors from 1938 through 1941 is but the ultimate physical manifestation of a hard economic fact. With the German, Italian and Russian invasions one government after another fell or was made impotent. What these governments might have accomplished had they been given more years of peace became an academic question. The Second World War devastated whole

countries in Eastern Europe. Nowhere did the four horsemen of the Apocalypse reap a greater harvest than in Poland and Yugoslavia. In their wake came a troubled peace which brought with it all of the miseries and hardships that have always attended political and social revolution. The end of the war put in power a whole constellation of Communist-dominated governments in Eastern Europe.

Even their very existence in this part of the world presented an anomaly. Small native Communist parties set themselves up with Soviet backing in countries where they had little tradition or influence. As contemporary witnesses of this revolution we are naturally more aroused or impressed by its undoubtedly violent nature. More impartial future historians may well conclude, however, that the East European revolution followed an already established pattern: the Communist regimes moved into a kind of political and moral vacuum in which old leaders, old issues, old parties, old institutions no longer exerted their customary force.

Even more anomalous was the fact that the new leaders of these countries owed allegiance to an ideology—Marxism—that had been specifically designed to apply not to backward agrarian countries but to highly developed capitalist countries. The peasantry had long suffered at the hands of a feudal aristocratic minority and infant bourgeois minority. It was now faced by the regime of another minority which claimed to rule in the name of an infant working class. It is little wonder that Communism in Eastern Europe is developing one paradoxical situation after another.

A most noteworthy paradox which took place in 1945-46 in each of the newly-styled people's democracies was the carrying out of another land reform

program—this time by the Communist leaders. Laws were passed which made it illegal for anyone to possess more than 50 hectares or about 125 acres of land in Czechoslovakia, Poland, Hungary and Rumania. In Yugoslavia the limit set was 35 hectares (86 acres) and in Bulgaria 20 hectares (50 acres). The result of this land reform program is that there are now in Eastern Europe about 12 million farms most of which are under 10 acres. Some 48 million acres (including forest land) were appropriated by the East European governments of which 30 million acres (an area the size of England and Wales) were distributed to some 3 million peasant families. The paradox involved is this: with these land reforms socialist governments carried out a basically capitalist policy. For reasons of immediate strategy Communist leaders who were sworn to do battle with the incipient capitalist tendencies of the class enemy in the countryside were actually abetting those capitalist tendencies by feeding the peasantry with more land.

There are several theoretical and real factors which can be raised to explain this apparent contradiction. First, the new Communist-dominated governments were not averse to winning the temporary support or at least neutralization of the peasant masses so as to be left free to liquidate the middle class. Second, by granting land especially to the poor peasants the Communists were hoping to gain their support for the next stage—the liquidation of the rich peasants as a class. Besides, the devastation of war forced the new governments to depend on the good will of the peasant, the real economic backbone of the region, for several badly needed good harvests. Thus a previous pattern was repeated: land reform was again carried out on the

basis of political and social necessity rather than economic rationalism.

What have been the general results of the land distribution carried out thus far by the Communist leaders? Especially in countries which had already experienced fairly effective land reforms before the war and which were traditionally small landholding countries such as Bulgaria, Yugoslavia and Rumania there was actually little land to distribute. Again a previous pattern was followed with the distribution of land which once belonged to the expelled German and Hungarian minority. In no East European country can it be said that the Communists have yet instituted a basic revolution in the outward forms of land tenure even as far-reaching, let us say, as the reforms carried out in Japan under American occupation. Those East European peasants who did receive land obtained very little, usually about 7 acres per beneficiary, which does not comprise a land unit even in the Balkans. This means that statistically the average landholding in Eastern Europe is even smaller today and—from the standpoint of agrarian economics, at least—less rational than before. Redistribution did not increase cultivation. That was not its primary purpose.

It is clear that the land distribution carried out thus far by the Communist leaders of Eastern Europe must be regarded primarily as a temporary political and social measure preparatory to a more serious revolution on the land. The reforms have undoubtedly served to help those who needed help most. New class divisions between the rich and poor peasants are being encouraged. That eventual collectivization is the goal of the present regimes is evident both from theory and practice. Government control over agriculture through a variety of agencies has reduced the independence

of the peasant land owners to a minimum. Price control, monopoly of large farm machinery, crop quotas, and other means already familiar to observers of the Soviet scene have been added to the more traditional inducements of subsidization and government contracts. Meanwhile the establishment of model collective state farms and the pressure exerted on peasants to join cooperative ventures of various kinds point to a future in which only the timing seems as yet uncertain.

Why is reorganization of farming needed in Eastern Europe? First, the farms are too small. In the more densely populated areas not only are the farms small in themselves, but they are divided into many parcels or strips which are reminiscent of medieval times. In Yugoslavia, for example, a thirty-acre farm may be fragmented into 25 parcels. The peasants themselves have realized that such a system is senseless and wasteful. Second, many regions in Eastern Europe grow the wrong crops and in the wrong way. They grow grain crops through extensive farming and a primitive rotation system in which year after year wheat follows corn and corn follows wheat. Instead of practicing intensive farming suitable to a densely populated areas, the East European peasant is trying to farm like the Kansas farmer. Instead of using farm animals for meat and dairy products, the East European peasant uses them for locomotion and power. Miss Doreen War-riner, a shrewd, though politically unreliable, analyst of agrarian economics in Eastern Europe, writes that the poorer peasant eats his corn and sells his wheat whereas what he ought to do is to feed his corn to the pigs, sell the pigs, and eat his wheat. Lack of machines, ignorance of modern techniques, absence of capital for self-improvement are but some of the

factors which impede agriculture in Eastern Europe. It is no wonder that an average East European farm produces about one-third less than a comparable West European farm even though each East European acre has to feed twice as many people.

Although the right of private property is constitutionally guaranteed by the present governments in Eastern Europe, the trend is definitely toward collectivization by degrees. The agency of this process is the producer's labor cooperative. In theory, at least, the members join voluntarily and pool their land for the purpose of machine cultivation. Farm animals are likewise pooled, though each family may keep a cow or pig for its own needs. At the end of the year, the income is divided among the members according to units, known as work-days, and to the land area contributed by each member. It is this latter feature that distinguishes the East European cooperative from the Soviet *kolkhoz*, where distribution is only according to work done. In the East European cooperative as now constituted, the wealthier farmer gets a higher return than the poor farmer because of the greater area of land he has pooled. On the other hand, certain restrictive laws limiting the proportion of the income distributed to the members prevents the cooperative from being turned into a joint stock venture. It is too early to express any final opinions with respect to the ultimate success of these cooperatives.

The results of the co-ops have thus far been disappointing to the governments which have established them. Even where the co-ops have shown higher yields, the statistics do not reveal that it is often because they received special privileges and grants from the government in machinery, subsidies, and the like. Furthermore, articles in the Com-

munist press written in the spirit of self-criticism reveal flagrant malpractices: the forcing of peasants into co-ops, the illegal requisitioning of pastures, the forced purchase by co-ops at unduly low fixed prices for farm animals from independent farmers, and other violations. Recent reports indicate that even in Yugoslavia, where Tito's policy is supposedly more considerate of the peasant, the opposition of the countryside to the government's tactics is obvious. If the example of the Soviet Union may be taken as a guide, peasant opposition may delay or make more difficult the transition from private to collective farming in Eastern Europe, but it will not be permitted to hinder the process.

The unmistakable trend toward agrarian collectivization in Eastern Europe, already an accomplished fact in the Soviet Union, presents in sharp contrast a dilemma which is currently faced by much of the world. The Western tradition of laissez-faire economics coupled with democracy accepts as a basic tenet that the independent concept of the private farmer is alone compatible with political freedom and economic well-being. It is not our purpose here to challenge this belief on theoretical grounds but rather to point out that the theory itself has had and now has even less application to East European reality.

Whatever political or social programs one may espouse or desire for Eastern Europe, the hard fact is that (1) the land holds a larger population than it can decently support; (2) the small size of most landholdings in the area makes rational economic exploitation impossible without some form of cooperative effort; and (3) no agency except government exists in this area which could carry out such needed measures as industrialization, resettlement, mechanization of agri-

culture where necessary, the encouragement of intensive rather than extensive farming and so on.

Acceptance of the above propositions by no means entails acceptance of the present governments of Eastern Europe or even of their program. The term "collectivization" is indeed a broad concept which lends itself to various interpretation. There is no need to accept the Soviet definition. The idea is certainly not new in Eastern Europe. Peasants in this region have known some form of mutual cooperation for centuries. Planning is not synonymous with a centralized dictatorship. Real land reform need not be based on class hatred.

To most American observers it will appear evident that the agrarian program of the present Communist-led regimes in Eastern Europe would not be politically and socially desirable even if it were economically feasible. Unmistakable signs of peasant resistance to increasing government pressure in the Eastern European countries may be taken as evidence that the peasantry there will not be reconciled to that program. On the other hand, it would be unfortunate if our evaluation of the present regimes in Eastern Europe would blind Americans to the fact that problems exist in Eastern Europe which cannot be solved on the basis of a farm economy such as ours. While our techniques will undoubtedly serve as an example to the world, the basic institutions and premises of our way of life are not only incomprehensible to others but out of physical reach. Only by recognizing this can we make the wisest application of our cooperation with other nations. What more can we wish for any people than what it wants for itself? Political circumstances have placed an obstacle between our world and that of Eastern Europe. What the future may bring is uncertain. Yet

Eastern Europe offers both a challenge and an object lesson which may be applied to large areas with similar problems throughout that part of the globe which is accessible to us. The challenge lies in the attempt to solve land

tenure problems without sacrificing political and social democracy or local traditions to the solution. The object lesson offered by Eastern Europe is that neither in practice nor even theory does the Communist program meet that challenge.

Some Problems of Land Tenure in Contemporary Africa[†]

By MELVILLE J. HERSKOVITS*

THE topic that has been assigned to me is a formidable one. The immensity of the region involved, the size of its populations, the degree of variation in the customs of its peoples, the differences to be discerned in the types of contact with other societies that has marked its historic experience, and the varied responses to that contact—all these make up a body of materials as vast as it is complex.

This holds true even when we limit our area to Africa south of the Sahara, as we must do if we are to have even a minimal measure of unity in our subject matter. For North Africa, important though it may be, is ethnically, historically, linguistically and culturally far more related to the Near and Middle East and to Southern Europe than it is to the bulk of the African continent. To the scientist who must phrase his problems in terms of functional relationships, Africa south of the Sahara is thus less heterogeneous, and permits of the analysis of particular problems in terms of the unities that underlie the differences.

At the outset, I should like to consider as background for our discussion some of the basic assumptions that will mark this treatment. I shall next try to describe the background of pre-contract land use before indicating, very briefly, the different experiences of the Africans in various parts of the sub-Saharan continent under contact with foreign modes of life. I shall then move on to sketch some problems in the control and use of the land that press for solution at the present time, and finally touch on the troubled

question of changing land use as this relates to problems of the morale of the indigenous population.

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My basic assumptions may be phrased as two propositions with which you may already be familiar but which, in approaching any problem of moment where human life is involved and where modes of human living, particularly changing modes of human living, are concerned, cannot too often be made explicit.

In the first place, it is impossible to grasp the full significance of any situation without some understanding of the pre-existing historical matrix out of which it has developed. In the face of present day pressures, and because of the urgency of the problems we face, we too often tend to forget that the questions we are attempting to solve have roots that go deep into the past. It follows, then, that any approach to a practical problem which ignores its historical setting will to that extent be unsatisfactory, while any solution proposed in such circumstances will of necessity fail to have valid perspective.

In the second place, the force of pre-existing custom must always be recognized and, especially where external pressure for new modes of life is being exerted on a people, must be given full accounting. If this is not done, not only will we run the risk of proposing remedies that are unrealistic and unworkable, but we may also institute programs that are dangerous or demoralizing. In the case of Africa, it is particularly important to keep this constantly in mind. It is ironic that the Africans, not politically free agents in most of the continent, are pre-

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sumed by many persons to be passive in the situations that affect them. This is exemplified by the fact that proposals for change have perhaps nowhere else been drawn so unilaterally, and with so little consultation of the people most concerned, as in the case of Africa.

It seems to have made little difference in this regard whether plans, drawn with the utmost care by the most competent technicians, and with the best of good will, by Colonial governments, or by United Nations agencies, or by a neutral country such as the United States, are considered. In all these instances, only what was to be done *for* or *to* the African has been set forth, while the reactions of the Africans, or the degree to which a proposed solution might or might not be in line with their pre-established ways of life, have been ignored. It is true that this latter factor is beginning to be taken into account, probably because of the failure of various plans that were drawn up without taking the force of pre-existing custom into account. It is to be hoped that these indications are correct, that we are learning, even if we are learning the hard way, the fact that the ways of life of a people present a body of imponderables that must be continuously taken into account by those who would bring about change in any phase of their life. Certainly the lesson has by no means been learned as well as it must be. And this is why it must continuously be stressed that where the force of these imponderables is not a major factor in planning, solutions will be unrealistic, at best unworkable, where they are not positively harmful.

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We may, then, in the light of the propositions that have been advanced, proceed to examine the background of indigenous African civilization against which any attempt to introduce changes in the

area of our interest here, land-use, must be projected. Yet the nature of the problem of land-use dictates that we must take the ecological as well as the cultural factor into account. Hence, even though I will in this discussion stress the human factor, and take it for granted that specialists, such as yourselves, are informed as to the ecological component in the situation, I may be permitted to recall to you something of the natural setting of Africa.

Looking at a relief map of the continent, it becomes apparent that Africa is something like an inverted dinner plate. With two exceptions, in Italian Somaliland and on the west coast, the continent is ringed by a coastal plain, behind which a series of elevations rise abruptly. Sometimes, as in the west, these are reduced to hills, but elsewhere, as in the Cameroons and in East Africa, they take the form of great mountain masses. Whether accentuated or not, they must be negotiated before the interior plateau is reached. This is why the rivers descend to the sea in a series of cataracts or waterfalls, a fact that has made entry into the continent by water routes so difficult, and constitutes the reason so often given for the supposedly long isolation of Africa from the rest of the world.

In truth, however, Africa has not been isolated from the rest of the world, for the idea is no more than a reflection of the fact that *European* contact with Africa, which was by sea, was relatively late; and that the penetration of Africa *by Europeans* from the sea-coast proved to be so difficult an undertaking. The fact of the matter is that the contacts of Africa south of the Sahara with Northern Africa and the Near East have been continuous and close, while communication with the rest of the Old World has not been lacking. It is interesting to

realize that what is called Morocco leather in Europe is named not for its source of origin, but because it was introduced into Europe from Morocco! It was brought to Morocco, however, across the Sahara from the south where, in northern Nigeria, it is still made for export to the north. Nor should we forget that coastal Africans have for centuries been in contact with the seafarers of Europe, since the earliest period of European expansion in the fifteenth century.

The amount of high bush, or what is called jungle, is relatively slight in Africa. We do not know its exact extent, but it is certainly not as extensive as thought by those who are not acquainted with the geography of the continent. In eastern Africa, in much of the Congo basin, away from the rivers, and in other regions, open land predominates. East Africa is one of the great grazing areas of the world. The Congo basin was not grazed because of the presence of the tsetse fly; rather its open country was used for agriculture, and has for untold years supported a considerable population. Western Africa also is predominantly agricultural; the size of its aboriginal population has from earliest days of European contact impressed those who visited it. There were cities in western Africa, predating European control, with populations of 250,000 to 300,000, and many communities comprising twenty, thirty, forty thousand persons and more.

One of the major problems of Africa derives from the character of the soil, much of which is of poor quality, and and thus difficult to work. The heavy tropical rains tend to leach out much of its valuable chemical contents if the land is exposed to them, this being one of the principal reasons why many of the projects for large-scale farming operations in Africa have not been as suc-

cessful as those who laid them out without testing the qualities and capacities of the soil had hoped they would be. The shifting cultivation of the natives permits the forest to protect the soil, preserving its ability to yield crops and inhibiting the kind of erosion we know to be so great a danger to world food resources. Here, indeed, we have an example of the importance, in introducing new forms of cultivation into Africa, or any other region of the world, of giving the most careful consideration to any pre-existing ecological balance that has been achieved between the population and the land on which it lives. One will have to think many times before disturbing that balance if one is not to waste much of the potential productivity of Africa, or other areas; if one is to develop those potentialities in terms that will utilize, rather than destroy, the capacities of the land.

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The map which accompanies this paper is one not ordinarily seen except by anthropologists, but which gives a basis for considering the human, or cultural, factor when seeking to understand the problems of the continent. It is what we call technically a culture-area map and indicates the manner in which the indigenous cultures of the continent may be classified in terms of the characteristic modes of life of their inhabitants, ways that must be reckoned with in any over-all planning. In a sense, these regional divisions may be taken as broadly representing different responses to the background of the natural environment. The divisions with which we here will be most concerned are the East African cattle area, the Congo basin, the Guinea Coast and the Western Sudan.

The regions that are marked Hottentot and Bushman represent areas in terms of cultures as they existed in the days before



European control. The Hottentot and Bushman peoples do still exist, but the experiences that they have had at the hands of an expanding frontier in South Africa have not been hospitable to the continuation of their ways of life. Most of those who survived the shock of contact with Europeans have been driven back into the less desirable parts of their aboriginal territory; in the case of the Bushmen, into the least livable portions

of the Kalahari Desert, a desert that in some places puts the Sahara to shame.

What a culture-area map really represents is an expression of the broad differences found in the modes of life of the people in different parts of a major world area. Thus in East Africa, for example, if we take land-use as our point of departure, agriculture provides subsistence. Yet from the viewpoint of its subsistence economy, East Africa has a very simple

system. The various local groups are self-supporting; none of the great markets found in other parts of the continent are present; there was no money in the sense of the cowrie shell or the bars of salt or the other least common denominators of value found in other parts of the continent. The groups were small in size and economically self-sufficient. The agricultural work was carried on in terms of patterns that are found over most of Africa, whereby the hard labor of clearing the land is done by men, the women thereafter preparing the soil, planting, cultivating, and reaping. The men were occupied with other matters, particularly with their cattle, and it is from this fact that we come upon an apt illustration of the difficulties inherent in trying to apply new criteria of value and usage to an area where these values and usages have been re-established.

You may notice that, on our culture-area map of Africa, the region we are discussing is named the East African Cattle Area. This is not because cattle are or were the most important factor in the subsistence economy of these people. In most of the area there would be as much reluctance to slaughter a cow for food as a European would have to light a cigarette with a bill of high denomination. Cattle were not money but without them, a person could have no position in society, and his prestige was nil. Cattle, as a matter of fact, though outstandingly important in the economy, functioned in what I like to think of as the prestige economy, as against the subsistence economy. It is scarcely necessary to point the relevance of this position of cattle in the culture of the East Africans for plans to make of their country a great world food reservoir by exploiting the potentialities of the grazing land. The land will support the

cattle, but the people will not raise them for slaughter.

If we contrast this picture with that of the Congo basin, the Guinea Coast and the Western Sudan, the difference is striking. Populations are larger, with settled communities, highly integrated political systems, and a considerable specialization of labor. It is from the Congo, West Africa and the Sudan that the great works of wood-carving, brass-casting and ivory-carving, that have taken so important a place in the world of art, have been derived. It is in this area that one finds the weavers, the iron-workers, the traders, all of whom are specialists in the European sense of the word. If, indeed, I were to compare the cultures of these areas with something in the historical background of Europe, I should say that they could best be thought of in terms of the feudal scene. The functioning of these specialists is and has been furthered by the presence of a money economy, which means that the exchanges of goods and payment of services necessitated by a complex culture and a dense population were facilitated.

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It must be understood that underlying these differences in the cultures of Africa are certain basic unities, and that it would throw our discussion out of perspective if we stressed the differences to the neglect of these similarities. Thus in all Africa, so far as it is possible to determine, one finds group control and discipline at a very high level. Even among the peoples where one would not expect this, as where herding makes for a nomadic way of life, the controls are nevertheless present, based on well-established principles that arise out of the relationship between the people and the political institutions that they have set up in their historic experience for their own

governing. One point I should like to make here as pertinent in this connection. Too often, in discussing the ways of life of non-European peoples who do not have written languages, the word "custom" tends to be used to denote these regulatory devices, rather than the term "law." As far as I can see, this is not a helpful usage. It is true that where there is no writing, custom is law; but custom is also law where there is writing, if those of us who live in literate societies consider some of the most effective controls over our own behavior, while it is notorious that to the degree, among ourselves, that where a law is not in accord with custom, its effectiveness tends to be nullified.

A second unity that, though in a measure present in all human society, marks Africa particularly, is the degree to which there are units that effectively function in terms of the cooperative principles. The degree of cooperation in African life is outstanding. It varies from the age-groups of young men, who came together under a leader to herd cattle in East Africa, to the cooperative agricultural work-associations found in West Africa and the Congo. These cooperative groups, furthermore, are marked by their institutional status. They are not casual, consisting of just a group of persons who come together to do something. They are the members of a community who work at specific tasks under the direction of a responsible leader, this factor of responsible leadership going back to the point of group control and discipline I have already stated to be so characteristic of the civilizations of Africa.

Another factor of importance in all the continent that must be taken into account in dealing with Africans, and which certainly must enter into the discussion of the tenure problems and land-

use in other parts of the world, is the role of the supernatural. It may seem curious to inject this note here, but I submit that in any civilization where a cult of the ancestors, for example, dictates the reasons why people are devoted to their land, this element in their belief-system is crucial if proposals to introduce changes in the holding or use of the land go beyond narrow technical considerations and are to achieve any measure of cooperation. Certainly, in Africa, the relationship between a given group and the dieties believed to control the land plus the ancestors who are attached to the particular plots where they lived is absolutely critical. As a matter of fact, religion is so close to the daily life of the African that it is unrealistic to move into any aspect of his existence without taking this into account.

A fourth point that marks the African, though difficult to describe, is agreed on by students of African societies and by Africans themselves who have trained themselves to look objectively at their own culture as a very real factor in African life. This is what I have come to call psychological resilience and adaptability, something that, though intangible, must be taken into account in any kind of planning, on any level. What do I mean by this intangible factor? There are certain people who, when presented with the need to change in their way of life, find adaptation of the greatest difficulty. They become demoralized, lost in a situation that is too much for them. That, for example, partially explains why contact in the United States with Europeans, resulted in the extinction of many American Indian tribes and the demoralization of most others. The American Indian tends to be less resilient, less adaptable, when presented with a new situation

than the African who, on the contrary, everywhere tends to adjust to new orientations. One of the reasons he is able to do this is because of the nature of the contacts, both friendly and hostile, between peoples over the vast African continent that continuously occurred before the Europeans arrived. Today, one of the reasons why the changes in the mode of life of Africans have such a dynamic quality is because of the interest of the Africans themselves in taking over what seems to them beneficial in Euro-American cultures. They are convinced that, in this way, they can achieve ends that will gain for them the advantages other peoples have gained through technical development, and a command of the intellectual resources that have enriched the material life of those from whom they are learning.

The contact of Africans with Europeans has differed considerably from area to area. The case of South Africa is a special one. Here the contact that has existed since the seventeenth century has been of a dual nature. The initial settlement, known today as Cape Town, was dominated by the English; later, people of Netherlands extraction moved in. These were the Boers or, as they prefer to be called today, the Afrikaaners. Thus a particular kind of control was superimposed upon the various cultural groups, including the Hottentot and Bushmen, in addition to the Bantu to the east. It is scarcely necessary to repeat the tale of how the Boers refused to accept English sovereignty; how they embarked on their great trek, moving northward to found their own state; how this eventually resulted in the formation of the present Dominion. What concerns us here is the fact that this historical sequence of events has resulted in the present-day situation in South Africa which, as far as problems of

human adjustment are concerned, makes that country one of the most difficult spots on earth.

It is well for us to remember, however, that in South Africa this development is not entirely unlike certain aspects of the history of the Americas. In South Africa the results, as far as the indigenous population is concerned, are different from what happened to the Indian peoples of the United States. This arises primarily from the fact that whereas aboriginally the part of North American which became the United States was sparsely settled, the native population of South Africa has always been appreciable in number. Today there are about eight million native Africans there, as against three million persons of European origin, plus a considerable number of Indians. Certainly the fact is significant for an understanding of the problems of land use that in South Africa the large numbers of Europeans who settled there, taking over the best land for their own use, forced still larger bodies of Africans, who aboriginally had pastoral or nomadic economies, to exist on small tracts, thus creating the difficult problems of the reserve, that now are so pressing in the Union.

In Eastern Africa—that is, along the east coast—and in the coastal region of much of West Africa, particularly in Nigeria, the Gold Coast, and the Gambia, contacts which were primarily with England in the early days took the form of trade. Rule by the English frequently resulted from treaties made with chiefs, which established protectorates that, in most cases, actually or in effect became colonies. However, in British Africa alone, the situation varies from one marked by the tensions that have arisen from the contact with white settlers in the East, to that in the Gold Coast and

Nigeria, colonies which have moved far along the road to effective self government.

In those parts of West and Equatorial Africa, where France is the ruling power, a different pattern of development has prevailed. Here policy has been dictated by the desire to make French citizens of the leaders of the areas, resulting in a situation quite different from that in British Africa. The enormous area of the Belgian Congo with its great mineral resources similarly represents a development and policy peculiar to it. We cannot here go into the story of the Congo Free State and how the controls of earlier days have since been changed in the interest of more effective utilization of its human and natural potentialities. Nor can we do more than point to the special problems of the great Portuguese territories of Angola and of Mozambique (Portuguese East Africa). Here the pattern is again different, both in the way in which controls were introduced and in the nature of their present form, especially as this affects land tenure and the use of land and man-power.

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The significance of an understanding of native cultures and the contacts they have had with European powers for those concerned with land use becomes apparent when we realize that about three-fourths of the population of Africa is dependent upon agriculture. The problems regarding the control and use of land at the present time are thus particularly pressing. These problems take various forms. One has to do with attempts to resolve the question of the pressure of population on the land, by the development of irrigation projects and through land allotments. Two of these which have achieved some measure of success may be mentioned—the Gezira project on the upper Nile and that of the

French in the Middle Niger. Both aim at making it possible for the natives to have a more stable internal economy while producing cash crops for the world market. In the Anglo-Egyptian Sudan, where many of the farmers have come in from other areas, the problem of land allotment is, however, far less difficult than where a people are living on ancestral land, in terms of their existing culture, especially where that land is traditionally under the control of the chief who allots it as representative of the people.

One of the growing problems of modern Africa is that of mechanized agriculture and the rural wage worker since, with the development of industry, various plantation schemes are coming more and more into competition in the labor market with those newer enterprises. This is not only the case where the wage workers in the mines of South Africa, the Katanga region of the Belgian Congo, Northern Rhodesia, Nigeria or the Gold Coast are involved. In Liberia, for example, the Firestone plantations are now competing with the mining operations of the Republic Steel Corporation for available workers. Or, again, in Portuguese territory and in the Belgian Congo, the sisal, cotton and coffee plantations are drawing labor into a different kind of competition where large-scale agriculture competes with the traditional family garden. Population pressure, where native peoples in East and South Africa as already mentioned, have been segregated on reserves, presents another problem. On these reserves, the increase in population has caused the land to be intensively utilized for growing food and raising herds, which in turn leads to ever increasing demands on soil that result in serious erosion. Thus here we see in some areas the beginning, and in others the completion, of the dreary

cycle of land destruction that we are coming to know so well over the world.

This brings us to another problem that Africa presents, in common with all colonial areas, that of the cash crop versus subsistence cultivation. It is already of moment in such territories as Uganda, where great emphasis has been laid on the production of cotton and other cash crops; here the growing of both cash and subsistence crops is being encouraged by the government action. In the Gold Coast, the problem of the cocoa trees that have been attacked by the swollen shoot disease has raised many economic, social, and, through repercussions, political questions that would not have presented themselves if there had been a greater degree of crop diversification. One of the ways in which a more adequate utilization of land can be achieved, however, is through cooperative efforts, which permit the transfer of a deep-seated pattern of African cultures to the present-day scene. No better example of this is to be had than can be found precisely in the Gold Coast, where the cooperatives of native cocoa growers have long functioned effectively. Similar cooperatives are also found elsewhere and, on the basis of traditional usage, can be further expanded in terms of modern developments.

Actually in Africa many populations are moving at present from group ownership of land, whereby portions of tribal holdings are allotted for individual or family use by the recognized authority, usually the chief or king, to individual ownership. There is a corresponding movement, as regards land-tenure, toward a modification of sanctions that are

wholly supernatural, so that secular as well as religious sanctions come into play, or in which secular factors bulk large. In terms of the nascent nationalities in Africa, furthermore, the fact that an individual of Nigeria thinks of himself as a Nigerian as well as a Yoruba, or that an inhabitant of the Gold Coast will speak of himself as a citizen of the Gold Coast as well as indicating that he is a Fanti or an Ashanti, is also indicative of the growing pressures consequent on the movement from internal tribal to external multi-tribal, or foreign political controls.

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We are faced, then, in Africa as elsewhere with the problem of the relationship of changing patterns of land tenure to social disorganization. For when the accepted modes of holding land are broken, all existing institutions of society are to some degree affected. The family, the clan, the local grouping cannot function as it did under the old system. Too often, moreover, this kind of disintegration of social institutions is followed by psychological demoralization. Thus one of the greatest problems in Africa today is how to encourage the African, how to have Africans encourage other Africans, to utilize their resources to the best advantage, in ways that will not be at conflict with pre-existing beliefs and sanctions, but that will at the same time make available to the world the resources of Africa, and to Africa the resources of the world.

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Possibilities of Co-operative Farming†

By S. M. AKHTAR*

Meaning and Significance

THE significance of co-operative farming as a subject of discussion is twofold: Firstly, it represents one of the alternative social forms which could be suggested as a solution of serious land tenure situations in certain countries which necessitate more or less drastic remedies. Secondly, this method of social change, while involving effective transformation of the economic situation, has the additional advantage of preserving such values as individual incentive and democratic procedures during and after the change.

It is necessary not only in the interest of clear thinking, but also that of correct action, that the concept of co-operative farming should, as far as possible, be clearly defined. The danger of confusion lies in two directions. On the one hand, co-operative farming is something more than the mere use of the co-operative principle in meeting some of the subsidiary needs of the agriculturist. For instance, in Pakistan, India, and elsewhere, co-operative societies have been supplying the cultivator with purchase, sale and credit facilities either through separate or multi-purpose organizations. Such societies do not represent activities which could be called co-operative farming. They may be brought under the general term, *agricultural co-operation*. A co-operative farmer must undertake some or all of the farming operations co-operatively through pooling of resources of members, partially or wholly. But mere pooling of resources is not enough.

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This leads us to the second direction in which confusions may arise.

The other and the more serious confusion results when the term "co-operative farming" is identified with "collective farming." It is not easy to distinguish between the two because sometimes the difference may be only in the spirit in which they are worked. It may be mentioned here that the basic characteristics of all co-operative organizations may be said to be three, whatever the purpose of a particular form of co-operation.¹ Firstly, the membership of a co-operative organization must be voluntary. If coercion is used for making or for keeping members within the society it ceases to be co-operative. Secondly, the decisions of a co-operative society must be arrived at democratically, directly or indirectly; the latter when the general assembly of the members makes decisions through its executive committee or a manager under its democratic control. If such a committee or a person becomes an autocrat or is dictated to by an external authority the organization ceases to be co-operative. The third distinguishing feature is equally important though it is frequently overlooked by writers on this subject. A co-operative form is actuated not merely by the profit motive in its activities. It is concerned as much with the moral welfare² of its members as with enhancing their material resources. In this respect a co-operative society is distinguishable from a joint stock company. The latter may possess attributes of voluntary membership and democratic control, but it is primarily activated by the profit motive.

¹ The word co-operation here is used in its technical sense.

² Strickland, *Co-operation in India*, pp. 15-16.

For instance, it is indifferent regarding the quality of the person who buys its shares as long as he has the purchase price to pay. From this also comes the fact that the profits shared by members of a truly co-operative society are in proportion not to the material assets contributed by them (which are rewarded on a uniform basis) but in proportion to the co-operative spirit shown by the members; in other words, in proportion to the use made by the members of the society for the common good.

Keeping these attributes of a co-operative organization in mind it would be easy to see how and why co-operative farming is something distinct from collective farming. The most typical instance of collective farming is the Soviet collective farms, called *kolkhoz*, which the Russians insist are "co-operatives" in character. Confusion arises here because things are different in practice than they are in theory. "Legally," says Lazar Volin (Regional Specialist, Office of Foreign Agricultural Relations, United States of America), "the *kolkhoz* is intended to be a self-governing organization, managing its own affairs within the limits set by government plans and regulations . . . In practice, however, the government and party officials are in the habit of appointing, dismissing and transferring officers from one *kolkhoz* to another at will, and the *kolkhoz* general assembly actually has little or no voice in the management of its *kolkhoz* affairs."³ The same applies as regards membership which is voluntary only in theory.

Suppose a collective farm is organized in which membership is voluntary and control democratic. Could it then be called a co-operative farm? Here a difference of opinion exists among experts. Some feel that a co-operative

farm should have the additional attribute of preserving individual rights of the members in the assets, in the form of land equipment, etc., which they contribute to the farm. Others do not regard this condition as essential. In a collective farm all assets are pooled and no individual rights in them are recognized. The members receive payments only in proportion to the labor performed by them on the farms. In extreme cases like the communal settlements in Israel (*kvutza*) even this right is denied to the members. And the principle of "from each according to capacity and to each according to need" is followed. But this example is not of collective farming because membership is voluntary and control democratic. Should it be the extreme case of co-operative farming where everything is pooled—consumption as well as production?

It would appear, therefore, that co-operative farming cannot hinge upon the degree of pooling of resources that may occur. This should be left to the will of the members. If they are free to enter or leave the organization and decide through the democratic procedure that specified or all resources contributed by them should be pooled, such a pooling will not deter from the co-operative character of the farm. It is likely, however, that—human nature being as it is—in most cases the members, especially when they are small landholders to whom such a system will appeal the most, will like to keep their ownership rights in land in one form or another.

We may say, therefore, that co-operative farming is a system of agriculture in which a number of persons form themselves into a co-operative society for purposes of carrying on their farming operations through mutual assistance, voluntarily and democratically deciding the necessary degree of pooling of re-

³ Lazar Volin, *A Survey of Soviet Agriculture* (Washington, D. C.: United States Department of Agriculture, 1951) p. 23.

sources required by the needs of the situation facing them.

Degree of Pooling of Resources

Now, assuming that membership is voluntary, control democratic, and purpose of the society mutual assistance in farming, the degree of pooling of resources that will occur will depend upon such factors as the amounts and kinds of resources possessed by the members, their ideals and traditions regarding individual possession of such resources, their trust of each other, the methods and technique of production contemplated, etc. In actual practice a variety of forms of farming co-operatives have resulted in various countries as a result of different degrees of pooling of assets or common use of land or equipment by members. These forms may be arranged as follows.

(1) Co-operatives formed for mechanized cultivation only. Such societies exist in France, Norway, the Netherlands, and England. The idea is to use the co-operative principle for modernizing and re-equipping agriculture through the use by members, who cannot afford their own machines, of co-operatively-owned mechanical devices. In France, for instance, there are threshing societies, and societies for mechanized cultivation. We are told that average cost of threshing by this method has proved to be 30% lower than by the old method of threshing through contractors.⁴ Under such a system the machines are hired by a member from a co-operative society to be used on his plot which is under his individual control and management.

(2) Co-operation may be extended to common operations on an individually-owned or occupied holding. Thus, levelling of land, taking out of deep-rooted weeds, ploughing, sowing, hoeing, etc., may be done co-operatively by

machinery, keeping the identity of individual plots separate. The harvesting is usually left to the individual so as to give him incentive for additional care of his land. In fact, it is possible to preserve the separate character of harvesting even though the process of harvesting is combined by a particular method of laying out plots as shown by Professor Otto Schiller's experiences in this connection.⁵ If farming operations are to be done co-operatively while the individual member rights to production from particular plots are to be preserved, the land belonging to or occupied by individual owners in the first instance will have to be pooled and then re-allotted in the form of convenient strips in one or more than one place. Under the system described by Professor Schiller, these strips were allotted to groups of members in such a way that they could be operated co-operatively by the group concerned without losing their identity. The number of places in which one individual's strips will lie will depend upon the various kinds of lands or the system of crop rotation relevant to the locality. A variety of arrangements is possible under this category of co-operative farming. The essential point is that the land is not pooled, in order to preserve incentives for those people whose attachment to private ownership or occupancy in land is strong. This is the most suitable system for most of the communities of small holders or small tenants found in countries of Asia and the Far East. The system is already at work in varying degrees in India, Pakistan, Israel, etc. There are differences in certain details which we may ignore for the present.

(3) A more advanced system of co-operation implies the pooling of all assets, including land for joint farming.

⁴ *Yearbook of Agricultural Co-operation*, 1950, p. 101.

⁵ Otto Schiller, "Farming Cooperatives," *Land Economics*, February 1951, p. 2.

⁶ P. pp. 1.

Here, if the rights in land are preserved at all, they consist only in a title to rent of the area contributed by the member concerned, in accordance with the principles decided by the Farming Society. The rent may be limited to a certain percentage of the produce or determined in some other way. It may be paid as an item of costs or as a share in profits after other costs including that of labor (as in some joint farming societies in India) have been accounted for.

The most typical of this form of co-operative farming is met with in some countries of Eastern Europe.⁶ In these countries (except perhaps in Yugoslavia) this form is supposed to be a transitional stage in the way of the establishment of collective farms on the Soviet model. It is difficult to say how far the element of voluntary membership and democratic control exists at the moment. Theoretically, these societies are formed by small peasants on their own initiative and membership is voluntary, while they are supposed to be democratically operated. It is expected that gradually the amount of rent paid to members will be reduced and ultimately abolished. If this process occurs with the full consent of the members it should not affect the co-operative character of these organizations. But it is difficult to believe that the members would willingly forego their rights in land. If such rights are socialized it will be due to pressure from above, and hence it is difficult to call these farms co-operatives. This does not mean that this model, if its voluntary and democratic character is preserved intact, cannot be introduced in other countries. It will depend, however, upon the extent to which members can be persuaded to substitute titles to rent in place of titles to specific plots of land without affecting

incentives. The system is being tried in Mexico.

(4) A still more advanced form of co-operative farming is one in which all assets including land are pooled and the remuneration to members is determined only by the quality and quantity of work done by them during a given period. This system is most suitable for people who have owned no land and work on areas leased from the state or some other source but is expensive to run.

The most advanced type of co-operatives, if this name may legitimately be applied to them, is the communal settlement of the type found in Israel. But such organizations are unique and can succeed only under a strong community feeling inspired by religion or an equally strong force. It cannot be recommended for common adoption.

Factors Determining Success

So far we have been considering the main features of co-operative farming and the various models of it which have been tried in various countries. It should be remembered, however, that apart from the Russian system which we shall regard as collective rather than co-operative farming, the co-operative principle has been applied to the farming processes by only a small number of peoples. The system is still in its experimental stage. What degree of success it will ultimately achieve will depend on a variety of factors psychological, historical and geographical. Secondly, it should not be forgotten that co-operative farming is not being suggested as a substitute for economic-sized, independently-owned and managed farms such as are found in many of the states of United States and elsewhere. It is being suggested as a remedy for a pathological situation in some agriculturally backward countries which have failed to make adequate use

⁶ For details see, *Yearbook of Agricultural Cooperation*, 1950, pp. 130-143.

of scientific methods of agriculture on account of the uneconomic size of their units of cultivation. It is being recommended as a safeguard against more drastic remedies which have been applied in certain parts of the world at enormous cost in terms of human misery and the sweeping away of values such as respect for the individual personality of man. Hence we have stressed its voluntary and democratic character. In introducing this system, on the other hand, it is the difficulty of reconciling the necessity of maintaining this voluntary and democratic character, especially in communities which are educationally and socially underdeveloped, with the pressure of the immediate need for such transformation which will be the chief barriers in the way of its success. What are then the possibilities of adoption of this system by the countries which need it so badly?

Whether given communities will take to this system and make it a success will depend upon a large number of factors, among which may be mentioned the following: (a) The quality of the leadership in the country inside and outside the governmental machinery. (b) The traditional habits and ideals of the mass of the people. (c) The particular form of co-operative farming selected for the locality concerned. (d) The methods adopted for the implementation of particular schemes. (e) Measures taken to preserve what has been achieved in the first instance.

Situation in Pakistan

I shall now take up each of these factors and analyze their implications with special reference to a concrete situation as it exists in my own country: We are faced with the following situation. The area of the country is about 360,000 acres and population 75.5 million souls, 90% of whom are illiterates. About 85% of the people depend upon agriculture

and the cultivated area per person is a little over one-half of an acre. The area cultivated per family whether of tenants or of peasant proprietors varies, but the vast majority of holdings are uneconomic in size—very few of them would be over ten acres each; holdings of less than five acres are very common. These holdings are not only small but are also fragmented. Half the total cultivated area is owned by absentee landlords and is cultivated by small tenants. The other half is owned by peasant proprietors. Of the three parties associated with the ownership or cultivation of land, none of them makes capital investment in land: the landlord because he thinks he gets enough by allotting his estate in small parcels, the tenant because he has neither the resources nor the incentive for investment, the peasant owner because of lack of capital. In any case the small unit of cultivation is hardly amenable to scientific farming even if there were incentives and financial resources. Only very simple and primitive methods can be applied on such lands. The result is as should be expected from such a situation: low productivity per man as well as per acre, small income, chronic shortage of funds, indebtedness, low state revenues, low standard of living and lack of minimum social amenities such as medical aid, education, etc. Undernourishment, ill health, high incidence of mortality, etc., are the final consequences. One factor has been accentuating the other. A vicious circle of poverty leading to lack of resources for abolition of poverty has been created. Half-measures of legislative regulation of tenancy, credit and marketing have brought in very limited success. The problem needs tackling at the source—at the production end and at the population end, which means encouragement of new sources of production through

industrialization, reorganization of agriculture and control of population growth. It is the second line of policy which is relevant to the present discussion.

Co-operative farming is suggested as a method of reorganization for reasons already given. What are the chances of its adoption and success? Let us proceed with the factors already mentioned which will determine this success.

Nature of Leadership

Firstly, as regards leadership: Our leadership is in the hands of two kinds of people—the landlord class and the educated middle-class, inside as well as outside government administration. With some isolated exceptions, the landlord class will not favor any radical change in the present land tenure system, obviously because such a change sooner or later will involve their relinquishing their rights in large estates which they do not cultivate themselves. On the contrary, they will do everything they can to counteract any tendencies that may favor a change of this kind. The educated middle-class is sympathetic to the peasantry. Many of them have sprung from the same stock. Others feel that an equitable solution of our agricultural problem is a condition precedent for our national advancement. They have only to be convinced that co-operative farming is the only way out of the present difficulties and they will take up the cause of educating the mass of the villagers regarding the advantages to be derived from the new system. They will supply the initiative where they are in a position to do so.

Social Habits and Ideals

As to the traditional habits and ideals of the mass of the people involved, three of them are relevant in this connection. Firstly, their passionate desire for and attachment to individual possession of land. This desire has historical and

psychological reasons behind it. They will thus hesitate to pool their land and may insist on having their individual plots to gather their own harvests. Secondly, they have a strong feeling for social equality which is their cultural trait derived from the Islamic concept of brotherhood. This will be a force in favor of the change. Thirdly, they look up to the government for initiative for an important change. This habit has historical reasons behind it and can be turned into a positive asset if tactfully handled. Attempts, however, will have to be made to develop greater initiative in the people through education and propaganda if permanent results are to be achieved.

Selecting the Form

The particular form of co-operative farming adopted must fit in with the psychological attitudes and environmental factors existing in a particular locality. Obviously among small peasant owners the rights in the landed property must be preserved. Where land does not belong to the members, for instance where large landed estates have been acquired from absentee landlords or where it is crown land, either allotments may be made in return for rent, or land may be pooled and cultivated by the peasants in return for a fixed wage plus a share in the final net profits. Perhaps the most commonly acceptable form would be where land is allotted to individual families to be worked upon by them with the help of the machinery co-operatively owned. This will represent something like the pattern of farming described by Professor Schiller in his widely-discussed article.⁷ All objections raised against his system appear to be objections against co-operative farming

⁷ See Karl Brandt, "Otto Schiller's Farming Co-operatives: A Critical Appraisal," *Land Economics*, May 1951, p. 105.

as such and should be dealt with at that level. Here we have assumed that for a particular situation co-operative farming is the only way out.

The system under which land is pooled and is worked by "brigades" of laborers will involve detailed keeping of accounts and is not likely to suit a community in which literacy percentage is negligible. Even if record-keepers and other administrators required were available, the system would be expensive in addition to being less satisfactory from the viewpoint of incentive.

Methods of Implementation

As regards the method of implementation the watchword is gradualness. Gradualness in this context has two aspects, geographical and constitutional. Geographically speaking, the co-operative system of farming need not be introduced in all parts of the country and among every agricultural community all at once. It can be tried first in those areas in which conditions are most favorable and social and political barriers are of the weakest resistance. For instance, vacant crown lands may be granted to communities on the condition that they operate them as a co-operative village. This is being done already in certain parts of the country. For instance, in the "Thal" area—a newly-opened canal colony in the Punjab—ex-servicemen and refugees from India have been settled in co-operative villages. In some other portions of the province, land left by migrating non-Moslems has been treated in the same way. In all, over 200 co-operative societies have been formed which cover 237,920 acres of land including 25,809 acres of virgin soil broken recently. They have a membership of 11,765 families. These societies help their members in the economic as well as social fields. Through them the members purchase seed and other of their

agricultural and domestic requirements. Through them they also satisfy their educational and religious needs. They further aim at providing dwelling houses, roads, and lighting and drainage facilities. They are in the process of becoming fullfledged co-operative farming societies. This also represents an instance of the other aspect of gradualness, i.e., the constitutional aspect. By this I mean the evolving of a farming co-operative society by stages. There is already a movement towards the creation of what are called multiple co-operative societies which aim at supplying more than one need of the members co-operatively. The first step should be the encouragement of such societies. These will meet the needs of the villager in the matter of purchase of implements, seeds, and manures, supply of credit and marketing facilities. The only link that will remain will be the extension of co-operation to the farming processes. This need not necessarily involve the pooling of land or even the use of heavy, expensive machinery. Some machinery, however, could be used without creating surplus labour problems. Such operations, for instance, as levelling of land, destruction of deep-rooted weed, etc., could be mechanically performed. As through expanding industrialization some population is shifted away from agriculture, mechanization may be extended to ploughing, sowing, harvesting, etc.

To come to the geographical aspect again the next step after establishing co-operative farming societies on vacant land will be to persuade village communities of peasant proprietors to transform themselves into co-operative villages. Inducements can be given in the form of reduced water rates, lower rates of land revenue, extension of social amenities like better schools, hospitals and roads, etc., supply of improved seed, artificial manure and

improved implements at concession prices. Once the superiority of the new system has been established by experience the people will take to it easily.

The greatest difficulty will arise when the system is extended to areas now owned by large absentee landlords. Here the first step will have to be to transfer the ownership of these lands to the state, the co-operative village or the individual cultivators as may be regarded best under the circumstances. Transfer of land rights to cultivators as individuals may be the most preferable course. This change will be resisted by the vested interests even though they will be compensated. This resistance may be a serious barrier because the landlord class is still politically powerful in spite of the introduction of adult suffrage. But with the spread of education and new ideas and the success of co-operative farming in non-landlord villages public opinion will become strong enough for the necessary legislation to be passed. Moreover, the landlords themselves may agree, fearing that a stage may develop when they may have to part with their lands without compensation. It is contem-

plated that the compensation to the landlords will be paid partly in cash and partly in bonds redeemable over a period of, say, twenty years. If the ownership rights are transferred to the members they will pay the price of the land in easy instalments over a similar period. Similar will be the case if proprietary rights in land are transferred to the co-operative village taken collectively.

Maintaining Achievement

Finally, steps will have to be taken by the state to create conditions for the continued successful functioning of co-operative villages after they have come into being. The state will arrange for the necessary technical and general education and overall assistance and supervision. The co-operative villages will be integrated into the general plans of development of the country. They will serve both as organs of carrying out the democratically-arrived decisions of the community as a whole and will also reflect the public opinion of the local community for the guidance of those in authority.

Land Use Potentialities of Artificially-Induced Precipitation in the Western United States

By MARION CLAWSON*

THE ability to make rain when wanted is an old dream of mankind. As such, it ranks with the desire for flight, with the dream of transmutation of metals, and various other dreams which the sophisticated thinkers of the new scientific world labeled as impossible 50 or 100 years ago. Many tribes or cultural groups the world around have elaborate rites and festivals for the purpose of bringing rain or for thanking the gods for propitious rains. Many of these tribal ceremonies persist to the present day. Over the last century or so, numerous men have tried to make rain along some pseudo-scientific line, oftentimes obtaining financial assistance from those who would benefit if these incantations were successful. In fact, in one period the Congress of the United States appropriated some money and insisted that the Weather Bureau, against its will, carry on some experiments in rain-making.

While the scientific men of a generation or two ago thought that rain-making was in the realm of the fanciful, if not fantastic, the most advanced scientific minds of the country today are convinced that under some conditions at least it is entirely possible to produce rain or other forms of precipitation. Whether this emerges from an interesting if possibly impractical and definitely unproven concept into one of enormous practical application or not, only time can tell. It may be recalled that in 1908 or 1910 the Wright Brothers had demonstrated that

sustained flight in heavier-than-air machines was possible. Its practical utility was negligible. Today thousands of people fly hourly to all parts of the world and the practical utility of flight is enormous. It may well be in the year 2000 that 1951 will be recognized as a period when artificially induced precipitation was roughly in the same status as was flight in 1908. It may be, also, that artificially-induced precipitation will have been forgotten by that time.

Present Status of Artificially-Induced Precipitation¹

The whole subject of artificially induced precipitation in the modern sense of the term in the United States goes back to July, 1946, when a chemist with the General Electric Corporation accidentally produced a miniature snowstorm in an ice box by the addition of a little dry ice. He and his co-workers had been carrying on some research on forces affecting weather, particularly for the Armed Services. As a result of this initial accidental snowstorm, a technique was developed for the seeding of likely cloud formations with minute particles of dry ice distributed from airplanes. This technique has been used in a number of instances with success claimed in many cases and with no apparent effect in others. The technique is limited even in the minds of its proponents to those situations in which ample moisture is

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¹ The present status of this entire subject, including effort^s at federal and state legislation, was considered in some detail at recent Congressional hearings. See *Joint Hearings before Subcommittees of the Committee on Interior and Insular Affairs, Interstate and Foreign Commerce, and Agriculture and Forestry, United States Senate, 82nd Congress, First Session on S. 5, S. 222, and S. 798, March 14, 15, 16, 19, and April 5, 1951.*

available in a super-saturated cloud and it is necessary only to bring about its precipitation. These circumstances are or may be rather rare. The method is also relatively expensive.

In a further search for rain-making methods, the General Electric scientists discovered that minute particles of silver iodide if distributed through the air, may form the nucleus around which particles of water would collect and fall in the form of rain. The silver iodide is put into the air by means of relatively inexpensive generators on the ground, the minute particles being directed into the clouds. This method is much cheaper to operate, and according to its sponsors much more effective in producing precipitation than is the dry ice method.

Efforts to increase precipitation by artificial methods are often most successful under conditions when precipitation does or might have occurred naturally. The effort at artificially-induced precipitation may have, or may not have, resulted in *more* precipitation than would otherwise have occurred. It is often extremely difficult to prove what would otherwise have taken place. Hence, arguments over the effectiveness of artificial inducement of precipitation are only natural.

The arguments range not only over the question of how effective these methods are at producing precipitation but how much they are under control. Some claim that the silver iodide discharged into the air may drift for literally hundreds of miles and possibly produce climatic results at long distances from the point of origin. Others contend that the silver iodide particles disintegrate almost immediately under the impact of sun and light. As of the present there is by no means a consensus among the various scientific groups and the practitioners of these methods.

Though there is not complete agreement as to the efficacy of the various methods of artificially inducing precipitation, there has been widespread trial of both of these two major methods. Companies or individuals specializing in artificially-induced precipitation are operating in a number of areas, particularly in the West. Contracts have been signed with land owners, mainly farmers, under which payments are made under certain specified conditions. One of the major difficulties thus far has been how to determine if the efforts have been successful. Some of the contracts provide for payment if precipitation is greater by a specified amount than the long-term average. This would seem to be an inappropriate basis of payment, particularly in arid areas where characteristically there are wide annual departures from the mean or average precipitation. In some years precipitation would be relatively high regardless of efforts at artificially-induced precipitation. On the other hand, the latter might be particularly valuable in a year when precipitation was less than average if these efforts had produced any rain. The legal and physical potentialities of these methods have aroused and excited many people. In some western states, commissions have been established by the state legislatures to study and to license these artificial rain-making attempts. Legislation has been introduced in Congress to provide for a federal commission with powers to study the subject and with authority to license practitioners. All in all, the matter of artificially-induced precipitation is very much a live subject today.

What Could Efforts at Artificially-Induced Precipitation Hope to Produce?

Although the efficacy of methods of artificially-induced precipitation are not fully accepted and although the whole

matter is very much in its infancy, it seems possible to set some probable limits to what might be accomplished even if present techniques or any others that may be developed are or will be generally successful.

In the first place, all of the efforts thus far have accepted as an unalterable factor the moisture in the air. In other words, there has been no hope and no effort at increasing the moisture in the air by importing of clouds from other areas, by changes in air currents, or any other conceivable manner. Thus, in an area where the total moisture in the air is low throughout nearly all of the year, the rain-making potential is naturally low. If rain-making efforts were successful on a fairly extensive scale it is conceivable that this added rain in some areas would mean more moisture in the air not only for those areas but for adjacent areas. There might thus be a secondary effect of rain-making in terms of increased moisture in the air but this is even more speculative for development in the future.

In the second place, it is contended by those who believe that artificially-induced precipitation is practical, and often admitted by those who doubt its practicability, that only a small part of the total moisture in the air is ever discharged to the earth as precipitation. Some have estimated that considerably less than 10 percent of the total moisture in the air ever falls as rain, snow or other precipitation. According to this view it would be possible to increase total precipitation considerably, at least on a percentage basis, without depriving any other area of its precipitation either natural or artificially induced. On the other hand, there are those who feel that any precipitation artificially induced at one point probably means a simple robbing of some other area of the moisture that would otherwise naturally have fallen

there. If the latter is true, practical and legal problems enormously increase. Naturally, this is an extremely important point to which intensive research should be directed.

A third matter of consideration is how far methods of artificially inducing precipitation may modify the intensity and other characteristics of precipitation in a particular area. It is believed that the same methods which produce precipitation can be used to prevent or reduce it. Not only might impending storms be intercepted and discharged before they reach a particular area, but the over-seeding of clouds, particularly by the dry ice method, may prevent a storm which otherwise could have been induced or which might have occurred naturally. A firm has been providing this sort of service to the pear-growing area of Southern Oregon in order to prevent or reduce damaging hail storms during the growing season. Conceivably, methods of artificially-induced precipitation might make rain storms more gentle than would normally occur. This would be particularly important in the Southwest where the limited rainfall often occurs in torrential downpours. The same amount of rain, if it fell at a slower rate, would be vastly more beneficial and much less destructive. Another possibility is that artificially-induced precipitation will simply be more precipitation having the same characteristics of intensity and other factors as the present precipitation.

It seems highly unlikely, for some years at least, that efforts at artificially-induced precipitation will always and invariably be successful to the maximum possible degree. There are too many factors as yet unknown to obtain maximum success at every trial. A substantial proportion of failures must be expected.

In view of all these facts, and admitting a large degree of uncertainty in the

situation, it may be possible to make some simplifying assumptions upon which further analysis can proceed. The simplest assumption is that efforts at inducing precipitation will be partially successful, increasing precipitation in some cases over what it would otherwise be, and failing to do so in other instances. The total effect will thus depend in part upon how generally such measures are applied. If applied in all areas and in all years, total effect will be at a maximum; if applied in some areas only, and in some years only, total effect will be reduced.

Even under the most optimistic assumptions there would still be dry years or dry spells, though perhaps not as dry, or not dry for as long, as in the absence of efforts at artificially-induced precipitation. There would still be relatively wet periods, perhaps wetter and perhaps wet for longer periods, than in the absence of a program. In the northern Great Plains, precipitation for the 1900-1916 period averaged more than 10 percent above what we now believe is the long-term average; in 1928-1939 it averaged about as much below the longterm average. Efforts at artificially-induced precipitation might conceivably make the 1900-1916 experience the truly average one, while at the same time not eliminating large, and perhaps long-continued, variations above and below that average.

There would still be approximately the same seasonal distribution as at present although this might be improved slightly. No one would seek to have it rain unless rain were needed and hence no increase in precipitation on those days or in those periods when there was ample moisture would be deliberately sought. To the extent that methods of artificially-induced precipitation were successful, the seasonal distribution of precipitation would be somewhat im-

proved. The intensity of precipitation would probably be no worse than at present, and might be much more favorable. These relatively modest assumptions thus imply no major change in the climate of an area. Precipitation along the Pacific Coast would still fall predominantly in the Winter and that in the Great Plains would still be predominantly in the Summer. The present dry areas would still be relatively dry and the present relatively-humid areas would be only slightly more humid. However, the border lines between arid and semi-arid, and between semi-arid and sub-humid, areas might shift appreciably.

Efforts to increase, by artificial methods, the total precipitation of an area are not in conflict with efforts to increase the effectiveness of the precipitation which does fall. Methods of retaining moisture in the soil and on the area where rain falls, and methods of attaining greater production from available moisture, are supplementary to, rather than competitive with, programs for artificially induced precipitation.

Increased Production on the Basis of Present Land Use

Under the foregoing assumptions as to increased long-term average precipitation which might be obtained from artificially-induced precipitation, it is possible to make some estimates of the increased agricultural production on the basis of present use of land. While it might be argued that the use of land would change as precipitation increases, this assumption needs further consideration which will be given later in this article.

Increases in crop production would be most marked for those crops now grown on lands too dry for optimum crop production. Outstanding among these is wheat. Wheat production in the entire

western half of the United States, except on irrigated lands and in a few other locations, is limited by available moisture. If precipitation should increase as much as 20 percent on a long term average basis, this would probably mean an equal or greater increase in wheat production in the West from the area now used for this crop. Such an increase would be more or less general throughout the area where wheat is now grown in the West. Perhaps next in importance would be cotton, which is grown in Texas and Oklahoma particularly, on relatively dry lands. Total cotton production would be increased from the land in the West now used for that crop if an increase in long-term average precipitation occurred. Corn is grown also on relatively dry lands, particularly along the western edge of the main corn belt. Yields of this crop would also be increased from additional precipitation. Moreover, some land now used for wheat production would be shifted to corn if long-term average precipitation increased. Other crops whose yield would be increased by more precipitation include grain sorghums, beans, possibly flax, wild hay in some areas, and a few other miscellaneous crops.

The largest area of relatively dry lands in the United States is used to produce grass and other native forage plants. Nearly 40 percent of the land area of the United States, or most of the western half, is used to produce grass and native forage plants on unimproved lands. For the most part, these lands are too dry for maximum production of the species now found on them and also too dry for the growth of the best forage species. Forage production from this vast area would be increased greatly by an increase in long-term average precipitation. In addition to improved ground cover, top growth and thrift,

changes in the plant association could be expected, with the possibility that more desirable species would supplant those of minor value. An increase of 20 percent in rainfall probably would mean an increase of at least 30 percent in average annual forage production. This conceivably could approach the equivalent of 10,000,000 tons of hay production.

It is evident even on the basis of these rather rough generalizations that the production of important crops in the western United States might be increased considerably by artificially-induced precipitation, assuming that such a program is at least moderately successful. In making these calculations it is assumed that no effort would have been made to increase precipitation in those areas where the averages are now ample for optimum crop yields. It is recognized that more timely precipitation when needed and the absence of untimely precipitation which is not needed would increase the yields even in the areas where average precipitation is adequate. However, it is assumed that such modifications of precipitation would be difficult to achieve and that the main effects will be limited to the drier areas. Should this assumption prove wrong, then estimates of increased crop production would also be in error.

Effect of Increased Precipitation upon Stream Flow

Only a relatively small part of the total precipitation within a watershed appears as measurable flow in major streams. The proportion that shows up as stream flow varies considerably from watershed to watershed, depending in part upon the amount and character of the precipitation but also upon topography, soils, drainage and other factors. For parts of the Northern Plains which were originally glaciated, for instance,

there is no defined drainage pattern and none of the moisture shows up as stream flow. Likewise in parts of the Great Basin and of the Southwest precipitation falls within closed basins and there is no major outlet or perhaps no observable stream at any point. For the entire Missouri River Basin system it is estimated that there is a total precipitation of 527 million acre feet over its total watershed of 338 million acres, or an average of 18 inches. The total measurable stream flow in the Missouri averages less than 60 million acre feet, or 11 percent of the total precipitation. Comparable figures for other major stream basins of the West are shown in the table.

TABLE I—WATER SUPPLY—WESTERN RIVER BASINS

River	Area 1000 Ac.	Precipitation 1000 Ac./Ft.	Runoff 1000 Ac./Ft.	Runoff %
Columbia.....	160,000	440,000	180,000	40.9
Central Valley...	68,163	240,000	33,000	13.7
Colorado.....	154,880	129,170	13,466	10.1
Rio Grande (U. S.).....	67,328	84,150	5,300	6.3
Missouri.....	338,000	527,000	60,000	11

While the amount of increased stream flow would depend in part upon the nature of that increased precipitation, particularly its intensity and its seasonal character, it is not unlikely that an increase in long-term average precipitation would increase stream flow at least proportionately.

Effect of Increased Precipitation on the Erosion Conservation Balance

An increase of long-term average precipitation will affect the erosion-conservation balance. The precise nature of this effect will depend upon a good many other factors, such as topography, soil permeability, present vegetation, and other characteristics of the watershed. It will depend also upon the character-

istics of the increased precipitation, particularly the intensity of storms and seasonal distribution of precipitation and will further depend upon how rapidly the increase in long-term average precipitation comes about. In general, an increase in long-term average precipitation will tend to be favorable toward increased conservation. More precipitation would generally mean more vegetation on the land and this will in general mean less erosion. However, this effect would be by no means uniform in all areas. Some situations would undoubtedly be made worse. In some areas more precipitation will still mean scanty vegetation and the added water will simply mean an added force for erosion. For most areas, however, the increased precipitation will mean better vegetative cover and hence reduced erosion. If methods of artificially inducing precipitation can result in making the rate of precipitation slower or more gentle and in reducing the torrential character of much rainfall, then the effect of increased precipitation would be uniformly in the direction of reduced erosion.

Increased precipitation would in time affect the soil itself. Climate, of which total precipitation is an important part, is one of the major soil determinants, both directly and in its influence on vegetation. More precipitation, particularly if better distributed and more gentle in character, would produce more vegetation. The soil would become more mature, with definite horizons, and more humus in the topsoil. These improvements in soil characteristics would make it even more important to conserve the soils and to reduce soil erosion.

Effect of Increased Precipitation on Land Use

If the long-term average precipitation can be increased as a result of programs

for artificially inducing precipitation, this would seem to raise many areas from their present submarginal character for crop production to a position where satisfactory crop production would be possible. In many areas there is some critical point above which crop production, admittedly with relatively low yields, is possible and below which successful continued production is not possible. The exact point at which this occurs depends on many other factors, including rate of evaporation, topography and permeability of soil, seasonability and character of the precipitation and others. A moderate increase in the long-term average precipitation—for example, say 20 percent—would almost surely raise some land from its present physically-submarginal character to a position in which continued crop production would be physically possible. There may well be many million acres for which this would be true for wheat production for instance. Since this would be true it would seem at first thought that relatively extensive shifts in land use would occur if precipitation could be increased.

However, secondary or additional effects of increased average annual precipitation should be borne in mind. As pointed out previously, an increase in long-term average precipitation would materially increase crop production from the lands now used for crops. In general, this added production could be produced at a cost well below costs of present production, even allowing for payments for the rain makers. Many costs of crop production are irrespective of crop yields and, if yields could be increased by 25 percent or more from approximately the same crop practices and field operations as at present, this would mean a substantially lower cost of production. The increase in crop production might easily be at a rate more rapid than the increase

in demand for the same products. Under these circumstances a combination of increased production and lower costs per unit of production would almost surely mean lower farm prices unless these were supported by governmental action. Lower prices for the crop best suited to relatively dry areas or a program of government price supports, which would almost surely include some control over the volume of crop production or the acreage permitted for such crops, would combine to work against new acreages for these same crops. Although some land might be shifted from physically submarginal for a particular crop to a point where it will be physically adaptable to that crop as a result of artificially-induced precipitation programs, when consideration was given to the economic factors involved the land might still be submarginal in character. Some shifts in crop production would undoubtedly take place but it is not unlikely that these would be relatively minor.

Moreover, increased, precipitation, if achieved, would make land now in grass and now submarginal for wheat, more valuable for grass production. Hence, the alternative use cost of this land would be higher and act further to inhibit use of such land for wheat production.

These conclusions might be upset considerably if artificially-induced precipitation were more successful in some areas than in others. It seems probable that efforts would be made to increase precipitation in all relatively dry areas. If success was reasonably uniform from area to area then the forces outlined above would tend to operate. However, it might be that efforts to increase precipitation will be more successful in some areas than in others. If this were true, shifts in land use would be greater. While there might be some shifts from

one crop to another, in general the greatest shift would be from grass or other native forage to crop production, particularly of wheat.

Effect of Increased Precipitation on Various Programs

If long term average precipitation can be increased 20 percent or some roughly similar amount through a program of artificially-induced precipitation, this will undoubtedly have an effect upon some of the present governmental and private programs. While the full amount of this effect cannot be foreseen accurately in advance, it is possible to suggest some of the ways in which a program of artificially-induced precipitation would affect various programs.

In total, there would be more irrigation of arid lands if long-term average precipitation can be increased by artificially-induced precipitation. This may sound startling when it is considered that in some areas an increase in precipitation makes irrigation unnecessary. In recent years irrigation has been pushing farther and farther eastward into the Great Plains. A moderate increase in long-term average precipitation in this area, sufficient to bring precipitation up to the best periods of the past, would undoubtedly retard the rate of irrigation development and might well make it uneconomic ever to irrigate in some areas. In some of the closed basins of the West, more precipitation might readily result in the flooding of some presently irrigated areas. However, such reductions in irrigation under these circumstances would be far more than offset by the increased irrigation that would be possible as a result of the increased stream flow previously considered. In most of the West irrigation is limited by the available water supply rather than by the existence of land suitable for irrigation.

The latter is limited also, particularly in some areas. But in total there is more land than there is irrigation water. To the extent that stream flow was increased, irrigation could be increased also. An increase in long-term average precipitation as a result of a program for artificially-induced precipitation would be particularly important to the areas now having the most restricted water supply. Outstanding among the latter is Southern California which has continuously overdrawn its ground water supply for many decades and which has had to reach further and further for an adequate supply of municipal and other water. An increase in the long-term average precipitation of this area, particularly if wisely used, would materially relieve its present water problems.

Hydroelectric power production could be increased practically everywhere throughout the West if long-term average precipitation were increased moderately. The extent of the hydroelectric power production might be increased as much as the increase in stream flow in many areas. This would be true particularly where present stream flow is now fully utilized in hydroelectric power production.

The nature of the flood control problem under a program of increased long-term average precipitation would depend in large part upon the character of that increased precipitation. If the seasonal distribution of precipitation were unchanged and the character of the individual storms remained the same, then an increase in long-term average precipitation would increase the flood problem. In general, a given increase in long-term average precipitation would mean a much greater increase in flood hazard. However, if seasonal distribution of precipitation were improved and particularly if the intensity of storms were re-

duced it is conceivable that an increase in average annual precipitation would not worsen the flood control problem and might actually lessen it.

One of the greatest effects of a program of artificially-induced precipitation might well be upon the public lands. Nearly one-fourth of the total land area of the United States is today owned by the federal government. It is in federal ownership for a variety of reasons, but one factor which is at least partly responsible for a great deal of it being in federal ownership is the fact that it is relatively dry. Even a moderate increase in long-term average precipitation would undoubtedly produce a demand for some changes in use of this land and also for changes in its ownership. If the use of the land were to shift from grazing to crop production, then changes in ownership would probably also occur. Even if the land continued for grazing use there might well be a demand for its transfer to private ownership. The Bureau of Land Management is the largest federal-land-administering agency, having about 180 million acres under its jurisdiction in the states, as contrasted with about 160 million acres under the jurisdiction of the Forest Service. The lands administered by the Bureau of Land Management average the driest of any lands in the United States. Conse-

quently, a program of artificially-induced precipitation is of particular interest to this agency.

Conclusion

The possibilities of increasing precipitation by various mechanisms is a matter of lively interest in a large part of the United States today. Under some circumstances it appears possible to increase precipitation by various means. It remains to be proven whether this can be done under a wide variety of conditions or only under rather unusual conditions. The extent of the increases and the effect upon the character of precipitation are yet unsettled issues. Intensive further study needs to be given the problem. In the meantime, active efforts on a relatively large scale are being carried on. These efforts may need control to prevent possible damage in the same or other areas or at the least need observation to ascertain precisely just what is being done. Control and observation probably should be carried out on a national scale since storms are notoriously no respecters of political boundaries and property lines. If a program of artificially-induced precipitation can be practiced successfully, even to a limited degree, the effects upon land use, agricultural programs and natural resources programs of all kinds will be very great.

Reports and Comments

Inflation and Public Utility Depreciation†

DEPRECIATION, in the words of Justice Brandeis, is "introduced in the exercise of practical judgment to serve three purposes. It preserves the integrity of the investment. . . . It serves to distribute equitably throughout the several years of service life . . . the known cost less the estimated salvage value. And it enables those interested, . . . to ascertain, as nearly as possible, the actual financial results of the years' operations."¹ Depreciation expense is an expression in monetary terms of the extent of loss of service capacity of property due to use, wear and tear, action of the elements, deterioration, etc. which is allocated to a particular period. Thus, there are two steps to the process of determination of the depreciation expense: the estimation of the service life of the property and of the annual "use" derived therefrom and the translation of this into monetary terms. The translation almost invariably is accomplished by distributing the original cost of the property or equipment over its life. The result is that the depreciation expense is stated in terms of original dollars.

Why should not the process be carried one step further? Why should not the annual depreciation expense be allowed in terms of current dollars? What this would mean in terms of regulatory practice would be the following: when there has been a significant change in the price level from the year considered as the base year, the commission would allow the depreciation expense to be changed in the same ratio. In a period of rising prices, this would result in the payment by customers of an amount in excess of that necessary to liquidate the dollar investment of security holders, but not the physical investment. This would be in reality a contri-

bution by the customers to the maintenance of the physical capital of the utility; for this reason the excess amount should be set aside in a reserve for price changes. Thus, two accounts would be necessary: a price adjustment account and a special reserve account. The first would appear as an expense account and the second would appear as a deduction from the plant valuation along with the normal depreciation reserve. For tax purposes, this would not be a deductible expense; since, under the present law, depreciation is based on original investment, unadjusted. To give the utility companies the full benefit of the adjustment in their depreciation expense, it would be necessary to increase the amount of the adjustment by a sum to cover the tax also. Such an increase has not been made in the illustration in the text. The inclusion of the increase would not have changed the conclusions substantially; it would have moved the point at which the cumulative total payments were equal to a later date. (Chart III A, B and C)

In order to disturb normal operations in the industry as little as possible, commission policies should be constant over as long a period as possible. Hence, it is pertinent to inquire: Would there be any advantages in making this adjustment as a permanent policy? Specifically, what difference would it make to the customers? the management? the investors? Also, it is necessary to establish as far as possible whether the policy would have desirable effects in connection with different types of price movements; namely, with a permanent change from one level to a higher level, or with a temporary movement upward and then back to the original level, or with an inflation-depression cycle.

To answer these questions, let us follow a hypothetical utility through a series of price movements noting the difference between the use of an unadjusted original cost method and this adjusted original cost method. For this purpose we will assume the following: in the

† The development of this topic was suggested to the author from a discussion by Professor Walter A. Morton, University of Wisconsin, on the effect in an inflation of the use of original cost as the method of valuation of public utility property.

¹ *United Railways and Electric Co. of Baltimore v. West*, 280 U. S. 234 (1930).

TABLE I—RISING PRICE TREND: ORIGINAL COST. HYPOTHETICAL DATA
(in thousands of dollars)

Year	Price Level	Plant	Deprec. Res.	Rate Base	Deprec. Exp.	Invest. Return	Total Cust. Payment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	100	50,000	10,000	40,000	2,000	2,000	4,000
2	105	50,000	10,000	40,000	2,000	2,000	4,000
3	110	50,100	10,004	40,096	2,004	2,005	4,009
4	115	50,300	10,016	40,288	2,012	2,014	4,026
5	120	50,600	10,040	40,560	2,024	2,028	4,052
10	145	53,600	10,480	43,120	2,144	2,156	4,300
20	195	67,100	14,560	52,540	2,684	2,627	5,311
30	200	86,400	25,120	61,280	3,456	3,064	6,520
40	200	97,900	34,040	63,860	3,916	3,193	7,109
46	200	100,000	36,000	64,000	4,000	3,200	7,200

Column 5 equals Column 3 less Column 4. Column 6 equals 4% of Column 3. Column 7 equals 5% of Column 5. Column 8 equals Column 6 plus Column 7.

base year, the plant original cost—\$50,000,000; the depreciation reserve—\$10,000,000; the rate base—\$40,000,000; the return allowed—5%; the average life of the property—25 years, i.e., a depreciation rate of 4%; and for the sake of isolating the problem of price changes from those of technological changes and expansion, let us assume that we have a static plant. The price movements assumed for this illustration will be: (1) a permanent rise in the price index from 100 to 200 over a period of 20 years, (2) a temporary rise and a subsequent fall in the price index from 100 to 200 to 100 over a period of

10 years and constant at 100 thereafter, and (3) a cyclical movement in which the price index changes from 100 to 200 to 40 to 100 and then remains at that level. The price changes were restricted in each case to a single movement; a multiple movement would have served only to complicate the illustration without changing the results.

Following through from these assumptions is a simple problem in accounting or arithmetic in which we wish to note particularly the amount of depreciation expense yearly and the return on the original investment yearly which is to be paid by the consumers

TABLE II—RISING PRICE TREND: ADJUSTED ORIGINAL COST. HYPOTHETICAL DATA
(in thousands of dollars)

Year	Price Level	Plant	Deprec. Res. *	Rate Base	Deprec. Exp.	Adjustment	Invest. Return	Total Cust. Payment
(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)
1	100	50,000	10,000	40,000	2,000	..	2,000	4,000
2	105	50,000	10,000	40,000	2,000	..	2,000	4,000
3	110	50,100	10,100	40,000	2,000	100	2,000	4,100
4	115	50,300	10,300	40,000	2,000	200	2,000	4,200
5	120	50,600	10,600	40,000	2,000	300	2,000	4,300
10	145	53,600	13,600	40,000	2,000	800	2,000	4,800
20	195	67,100	27,000	40,000	2,000	1,800	2,000	5,800
30	200	86,400	46,400	40,000	2,000	2,000	2,000	6,000
40	200	97,900	57,900	40,000	2,000	2,000	2,000	6,000
46	200	100,000	60,000	40,000	2,000	2,000	2,000	6,000

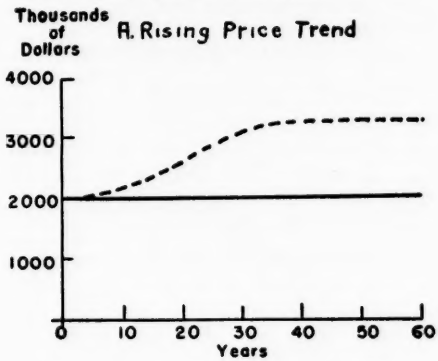
*Combination of normal depreciation reserve and reserve for price changes.

Column 6a equals difference in price level of previous year from base year times depreciation expense. Column 8 equals Column 6 plus Column 6a plus Column 7.

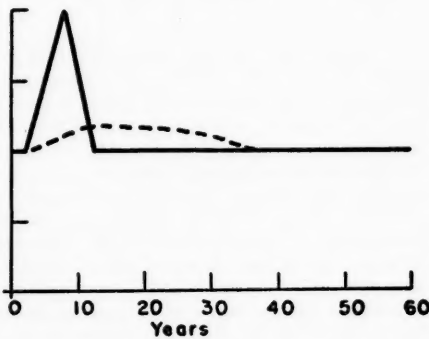
CHART I—ANNUAL DEPRECIATION EXPENSE. (Vertical scale in units of \$1,000,000. Legend: broken line, unadjusted depreciation expense; unbroken line, adjusted depreciation expense.)



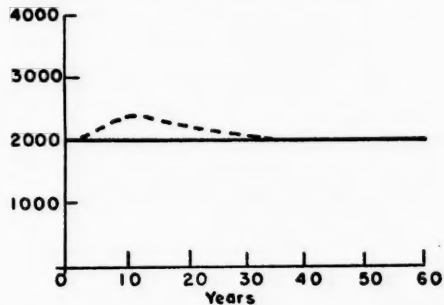
CHART II—ANNUAL RETURN ON ORIGINAL INVESTMENT. (Legend: unbroken line, with depreciation expense unadjusted; broken line, with depreciation expense adjusted.)



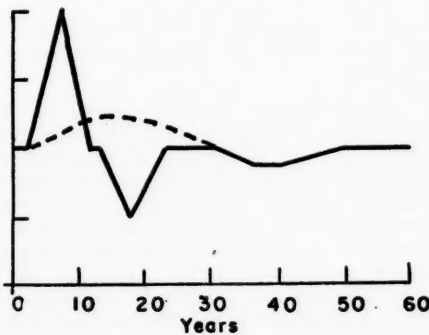
B. Temporary Inflation



B. Temporary Inflation



C. Inflation-Depression



C. Inflation-Depression

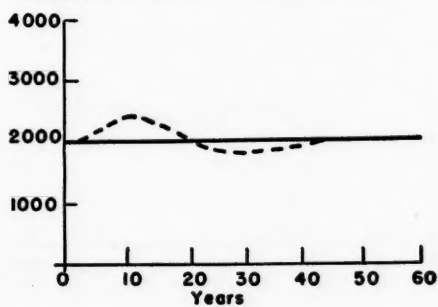
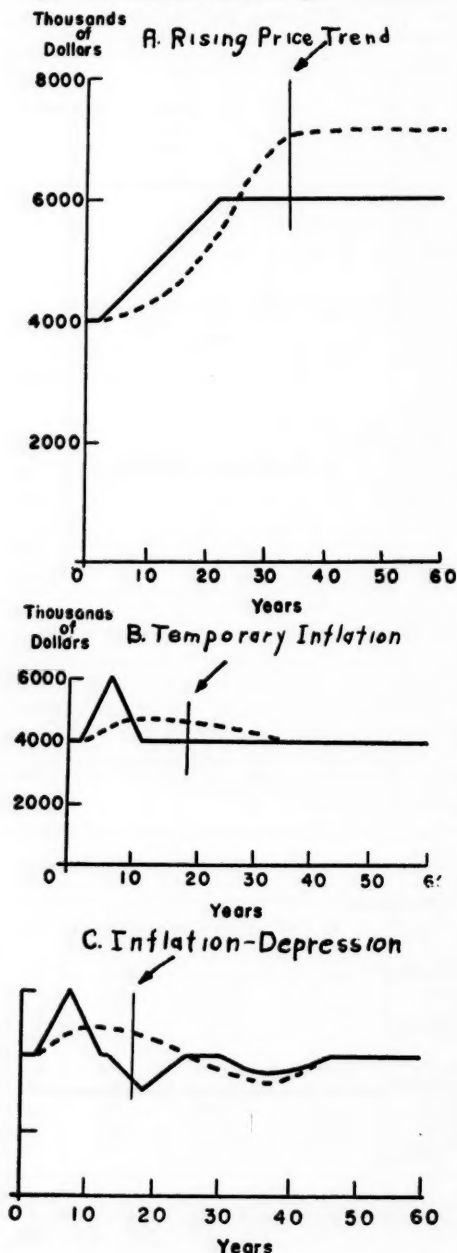


CHART III—ANNUAL TOTAL CUSTOMER PAYMENTS. (Legend: unbroken line, with depreciation expense unadjusted; broken line, with depreciation expense adjusted.) Arrow indicates point where cumulative totals are equal.



of the service. In order that the method be made clear, there is reproduced in Tables I and II the results of the use of an unadjusted original cost method and the adjustment method under conditions of a rising price trend. The figures are summarized for this price condition and the others as well in the charts which accompany this article. Tables, not reproduced here but similar to these, form the basis for the charts summarizing the behavior of the depreciation expense and return on investment under the other price changes. Table I shows the behavior of the plant, depreciation reserve, rate base, depreciation expense, return on investment and total customer payment figures with depreciation unadjusted for price changes; Table II shows the same figures with an adjustment of the depreciation expense for changes in the price level.

The plant figure varies with price fluctuations under an original cost method of valuation as replacements of property are made at different price levels (Tables I and II, column 3.)

As prices rise, the yearly depreciation expense rises when either the unadjusted original cost or the adjusted original cost is used. (Table I, Column 6 and Table II, columns 6 and 6a; chart IA, IB, and IC) In the case of unadjusted original cost, the expense rises because the original cost of the plant increases with the higher priced replacements. In the case of the adjusted original cost, it rises because the adjustment is made. The expense rises faster with the adjustment; but eventually, in both methods, the expense levels off at the same amount. (Chart IA) As prices fall, the depreciation expense falls but again there is a more rapid change when the adjustment is made. (Chart IB and IC)

These rises and falls in the annual depreciation charges are also reflected in the reserve accounts.

As prices vary, the full change in the original cost of the plant is not reflected in the rate base since the reserve for depreciation varies. In the case of the use of an unadjusted original cost, a change in the rate base results since the change in the depreciation reserve is not as rapid as the rise in prices. In the case of the use of the adjustment, since price changes are completely compensated for by adjustments in the expenses and in the

reserve for price changes, the rate base does not vary.

The result of this difference in the rate base is that the customers' payments for a return on original investment vary with the changes in prices when the depreciation charges are unadjusted and remain the same when the adjustment is made (Chart II, A, B and C).

Combining the depreciation expense with payments for a return on original investment into total customer payments, we find that the adjustment produces higher initial total payments and lower ultimate total payments when prices rise to a higher permanent level. (Chart IIIA) And when we consider the other price conditions, we find that eventual declines in the index of prices even to a depression level of 40 and back are not sufficient to overcome the initial effects of a price increase to 200.

In the long run, then, it is apparent that the effect of the adjustment of the depreciation expense to the current level of prices is to reduce the total amount which the customers will have to pay. There are some other reasons why this procedure of recognizing price changes is desirable. One reason has to do with the timing of the payments by the customers: there will be a fluctuation of utility rates to the extent that these payments are reflected in rates which will correspond relatively closely with the periods of prosperity and depression and with the ability of customers to pay the rates. There will be a lag for two reasons: first, there should be no adjustments except for price changes which have actually occurred; and second, it will be within the province of the commissions to indicate when the price changes have been of sufficient importance to make an adjustment desirable.

Another desirable aspect of the adjustment relates to the maintenance of the plant and service. With the adjustment, the plant management will be better able to maintain the existing plant; the use of unadjusted depreciation charges requires that in periods of rising prices additional capital be obtained from the securities markets for the maintenance of the existing plant in addition to the capital necessary to finance expansion of services which is most likely to occur at this time.

The third desirable effect of the adjustment is related to the investors in utility securities.

This adjustment would prevent dilution of their investment made necessary without such adjustment by the issue of additional securities in order to maintain the same physical plant.

The adjustment proposed in this discussion has been based on an index of prices. The question naturally arises: What index of prices? Since the purpose of the adjustment is to maintain the physical plant, the index used should be an index of utility construction and equipment costs; and, since these are likely to show significant variations from one part of the country to another, it would be necessary to develop an index applicable to service areas of the utilities. This is not an easy problem to solve and its importance should not be minimized.

Finally, it should be emphasized that this adjustment does not solve any problems concerning the expansion of services or concerning technological changes. These must still be dealt with and preferably on a case by case method. What this adjustment does do is to place the burden of high replacement costs on the consumers during the period of high prices and it prevents a ballooning of the rate base which places a greater burden in the aggregate on the consumers in later time periods.

Conclusions

The proposed modification of the present method of computing the annual depreciation expense was arrived at with the realization that customers must pay at some time or another for the plant which they use. The only questions remaining are: (1) When is payment to be made? and (2) How is the payment to be computed?

A positive, though not perfect, correlation between income and price movements leads to the conclusion that customers are better able to pay in periods when prices are high. And if the customer does not make the payment at this time, the funds for maintenance of the physical plant of the utility must be raised from other sources with the result that the rate base will be increased along with the depreciation expense and the effect of the high prices will be continued into future periods.

The adjustment is proposed in the form of an adjustment of the depreciation expense because of the writer's conviction that the plant accounts of a utility should reflect the original cost of the property and equip-

ment. The adjustment is in the expense and not an increase in valuation.

The problem treated in this paper has become acute in recent years because of the severity of the general increase in prices. The proposed modification should be considered, however, only if it is intended to be

continued as the policy when, or if, price changes reverse their present direction.

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Urban Redevelopment and Industry

IN these early stages of urban redevelopment, emphasis now is upon redevelopment for residential uses. However, with the increasing awareness of difficulties facing industry in urban areas, with the increasing analysis of the economic base of urban areas so that the base can be extended, redevelopment for industrial uses will assume increasing importance. This article reviews some of the major problems involved in redevelopment for industrial use with which both the public agency and the developer may be confronted.

Before any city planning agency or redevelopment agency undertakes a major industrial redevelopment project, it is well that the economic base of the whole urban area be thoroughly investigated. Cities vary tremendously in their social and economic characteristics and potentialities. This is readily apparent to specialists in the field but, as development programs proceed with the enthusiasm of local citizenry, this aspect should be re-emphasized. Economic classification of cities by function will prove a major guide for gauging potentialities.¹

More detailed analysis of potential industrial development can be guided by study of resources, labor and capital which are available, or which can be extended into the specific area.²

The dynamics of urban land use offer an open field for research and analysis. This is especially true in regard to industrial land use. The movements of such land use are

known in a general way, but the shifting character, relationship to peripheral uses, and possibilities in future relationships need to be fully explored. In general, the central business districts of many of our large cities and central cities in metropolitan areas are surrounded by blighted residential areas and industrial areas. Heterogeneous land uses usually characterize such areas. Neither residential nor industrial use is well served under such conditions. Redevelopment can serve to remedy this situation and allow these strategic sections of our urban area to serve their highest function. Redevelopment may also allow peripheral areas to serve industry more adequately.

Brief review of the industrial area problem in Chicago will spotlight conditions to be met in numerous large urban centers. The results of a recent industrial survey indicate that currently there is practically no desirable vacant land suitable for industrial use available in the central section of Chicago. This lack of open space for new construction, coupled with the obsolete character of a major portion of the vacant industrial buildings now available, forces industry to locate in outlying sections of the city, or in other portions of the metropolitan district. As industry and commerce move, economic activity is shifted likewise. Workers shift residential locations and shift location of consumer purchases. If these movements persist,

¹ Chauncey Harris, "A Functional Classification of Cities in the United States," *Geographical Review*, January 1943, pp. 86-99; Grace Kneeder Olson, *Economic Classification of Cities* (The Municipal Yearbook, Chicago, The International City Managers' Association, 1950), pp. 29-37; Dwight Palmer, "The Location of Industry," *Appraisal Journal*, April 1948, pp. 125-130; and George T. Renner, "Geography of Industrial Localization," *Economic Geography*, July 1947, pp. 167-189.

² Many studies of this type have been made recently including the following of particular merit: America Industrial Development Council, *An Outline for a Community*

Industrial Development Program, (prepared by Arthur M. Field: The Council, 1946); *Industrial Development Reports, No. 1 Step in Community Industrial Promotion*, (Boston: The Filene Foundation, 1950); New York State, Department of Commerce, *Community Industrial Development* (Albany: Department of Commerce, 1949); U. S. Dept. of Commerce, Office of Industry and Commerce, *Basic Industrial Location Factors . . .* (Washington, D. C., Dept. of Commerce Industrial Series, No. 74, Revised 1947); and Kansas City, Mo., City Plan Commission, *Locational Costs in Industrial Districts of Greater Kansas City*, (Kansas City, Mo., the author, 1950).

far-reaching changes in the economic life of Chicago undoubtedly will take place.³

Brief analysis of the existing situation, as regards industrial land use in central areas, will give further emphasis to the problem involved in provision of desirable industrial space. Most of the present industrial space, whether vacant or occupied, is subject to two outstanding disadvantages. The factors are a lack of adequate loading and unloading facilities for truck transportation, and the generally congested streets. Both features increase operational costs. Other prevalent environmental factors involve lack of off-street parking, lack of direct switch-tracks, and blighted areas surrounding the plants. Additional factors which cause change of industrial location relate more to the specific obsolete structure. They include low area per floor, multi-story structures requiring vertical rather than horizontal plant operations, inadequate floor load capacity, and inadequate elevators.⁴

The absence of good industrial space in Chicago is thus naturally most pronounced in the areas surrounding the central business district. Fifty-eight percent of the 252 firms of record, leaving or planning to leave Chicago during the period January 1, 1946 to August 31, 1950, were located in an area encompassed by a 4½ mile radius of State and Madison Streets. This is the case although 50 percent of the available building space is located within a 17 square mile area bounded by Western Avenue to the Lake, and Cermak Road to Diversey Boulevard.

The eight central areas of the city designated by the Chicago Plan Commission and the Chicago Land Clearance Commission for redevelopment study have about 74 percent of the available industrial building space. Of this space, one percent is in plants of modern and recent construction, 53 percent is in plants in good repair but due to age and character is less acceptable than the above type, 30 percent is in plants requiring considerable repair prior to use and thus not readily saleable, 4 of 1 percent is in plants bordering on blighted areas, and 15 percent of the available space is in unclassified plants.

³ The Chicago Plan Commission has summarized the Chicago situation in its recent report entitled: *Redevelopment for Industry, Statement on the Clearance of Blighted Areas for Industrial Use* (Chicago Plan Commission, March 1951, mimeo).

⁴ "Obsolescence in Industrial Buildings," *Journal of Property Management*, Fall 1951, pp. 16-23. (No author)

Thus, about 75 percent of all old and non-acceptable buildings in the city are located in the eight central areas, and about 83 percent of the available industrial building space in these central areas is old and not generally acceptable.

With development of the expressway system, and increasing progress in private and public redevelopment of Chicago's blighted areas, will come a more desirable environment for Chicago's citizens and industry. It will also mean relocation for some industries in a market characterized by scarcity of desirable industrial locations. With coordination of urban redevelopment and public works programs, such difficulties, to some extent, may be alleviated.

The state of industrial land uses within Chicago does not involve a situation unique in American cities. Technological changes, necessarily, will make renewal of the city structure absolutely mandatory unless they voluntarily or involuntarily are to change radically in function. Thus, industrial redevelopment efforts as begun in Pittsburgh, Chicago, Nashville, Norfolk, and St. Louis, will serve a long overdue need.⁵

Indications of change in the pattern of industrial land uses around large cities, or within metropolitan districts, are evident. Part of the change, without doubt, is involuntary as central cities become more densely built upon. There is a large body of evidence, however, which points to possible new patterns which may be evolving. Security factors are not the only reasons bringing industry to smaller cities.⁶ The pattern of life in smaller cities for family life, in some respects, serves to attract industry.

⁵ Chicago Land Clearance Commission, *Redevelopment Project No. 3* (Chicago, Ill., Chicago Land Clearance Commission, June 1951); Gerald Gimre, "Nashville Proceeds With Redevelopment Plans," *American City*, July 1950, pp. 86-87; and Norman Williams (Editor), "Commercial Redevelopment in Pennsylvania," *American City*, December, 1950, p. 149.

⁶ The case for national security in location has been well explored in: National Security Resources Board, *Is Your Plant a Target?* (Washington, D. C., U. S. G. P. O., August 1951); National Security Resources Board, and *National Security Factors in Industrial Location* (Washington, D. C., the author, July 22, 1948, mimeo). Other factors have been analyzed in: H. Y. Bassett, *What Does Industry Expect of a Community* (University, Alabama: University of Alabama, Bureau of Public Administration, 1948); National Industrial Conference Board, *Decentralization in Industry*, Studies in Business Policy, No. 30 (New York: The Board, 1948); and S. B. Williams, "The Town in Which We Want to Build a Plant," *American City*, June 1950, pp. 131-133.

Low original and operating costs, in some cases, may also prove attractive.

With these shifts of land use the fact still remains that the large urban center or central city of the metropolitan district is a major focal point. Transportation routes often caused original settlement to take place. With the addition of facilities the focus assumed even greater importance. Centers of transportation, labor supply, natural resources and capital will continue to prove of importance to any industrialized economy. The task, as with all urban planning, is to so order land uses that the character and intensity of land use will not adversely effect the social purpose to be served.

Existing Conditions

Existing conditions within areas suitable for industrial use often determine, to a great degree, the extent of possible development and may limit such use. Within a Chicago blighted area considered suitable for industrial redevelopment a great portion of the lots are now vacant. At one time nearly all were improved with residential structures. As new residential areas were developed and the older area became less desirable for residential purposes, the structures were either torn down or allowed to become so dilapidated that only families from the lowest economic stratum would occupy them. The proximity of this site to the central business district served to keep speculative land values in the area. The land was thought to be potentially valuable for commercial or industrial use with the result that today the land is held speculatively at two-thirds of the total price of the improved property and the structures represent only one-third of that price. This relationship is contrary to prices in many potentially residential blighted sites where the structure-land ratio is two to one. Undoubtedly, these speculative values have served to keep much of the area in an unproductive and unoccupied state and as such are representative of conditions in much of the blighted sections of our cities.

Industries frequently are located within these areas proposed for industrial development. Many of them may be suitable for retention and inclusion in the new development. These uses and structures may limit possibilities of the site plan. Certain existing land improvements in these areas also may be worth retention. Street surfacing nowadays

represents a large investment. If a desirable site plan will allow retention of such surfacing, considerable saving may result. Underground utilities represent the other major type of land improvement which warrants careful consideration. Electrical, telephone, and water and sewer installations in these areas often lead through the areas from the point of origin to outlying distribution plants. Inventory of these and careful evaluation of each may allow tremendous savings. Care need always be taken in considering these installations, to be sure they do not prevent sound land use and restrict the long-term character of the investment.

Character of Development

At present, federal legislation requires either that development produce housing as its end product or supplant areas of housing with other types of development. Blighted areas alone can now be developed for industrial purposes under terms of Title I of the Housing Act of 1949. Ultimately, it can be hoped that legislation will allow redevelopment of predominantly open areas of the type platted in the 1920's for all purposes which will best serve the needs of the community. Then certain of these areas may be redeveloped for industrial purposes and not alone residential purposes.

The desirable relationship between industrial and residential land uses in our urban areas needs to be more fully explored. Altogether with the great specialization evident among our professions, little real constructive criticism has emerged which points to new rational patterns of urban land use. Industrialists have emphasized industrial land use and only occasionally has the total land urban use pattern been of concern.⁷

The character of recent industrial development on the periphery of our urban areas needs particular study. It provides examples of the type of structure, structural arrangement on the site, provision of facilities and

⁷ A major contribution from the industrial developers is given in: National Industrial Zoning Committee, *Principles of Industrial Zoning* (Available from Assn. of State Planning and Development Agencies, Chicago, Illinois, August 1951). The interrelation of various land uses and specific needs of industry are analyzed in the following: O. K. Buck, *What the Planner Can Do to Assist in Developing a Healthy Industrial Growth*, a paper presented before California Chapter of the American Institute of Planners, 1950; P. W. MacFarlane, "Planning for Industry," *Journal of the Town Planning Institute*, May-June 1947, pp. 101-108; and J. K. Weston, "Space Needs of Industry," *Town and Country Planning*, August 1950, pp. 317-322.

⁸ A pioneer to specific graduate students of the University of the South Side

financing methods which may be used in redevelopment for industry.

In general, most industries have gone to the periphery of urban areas to secure reasonably valued land. On such land the one-story structure can be built to allow horizontal operations. Parking areas, now absolutely necessary to all industrial areas, can likewise be provided at minimum cost. The general traffic pattern in such outlying areas is usually free of congestion both for employee passenger-vehicles and trucks. The general environment is also much more satisfactory for employees than is generally the case in central areas of the city.

In providing industrial areas in redevelopment, the character of development must be such that inlying sites will compete with the outlying sites to which many industries are moving. That means that land values must be sufficiently reasonable to allow horizontal operations in one-story structures with adequate on-site parking. In some cases, the proximity of proposed industrial sites to central business districts, to the labor supply and adaptability of the site for rail and truck transport facilities, may mean that demand will be great from specific types of industry requiring in-lying sites.⁸ Demand may thus be sufficient to warrant multi-story development. At present, however, the demand for space in such structures seems definitely limited. This demand may continue to be limited despite the feasibility of providing direct unloading operations on each floor and other means of reducing plant operation costs in multi-story structures.

Many concerns receive raw material by rail and ship finished products by truck. Railroad and trucking facilities should be available to all concerns if that is readily possible. However, if access by both rail and truck is difficult to secure, the increasing importance of truck transportation should be recognized and such access assured.

Railroad facilities by their nature are usually well isolated from other activities. However, trucking operations, inasmuch as they use public rights-of-way, are usually intermixed with other vehicular operations. It is important to isolate truck loading and

unloading operations from other vehicular traffic as much as possible.

Provision of railroad facilities may be hindered by location of existing structures. If considerable open space is available, and the vehicular traffic pattern can be readily changed, types of railroad access found satisfactory by certain industrial districts may prove useable. The Central Manufacturing District of Chicago recommends provision of tracks leading straight into the site. The Clearing Industrial District located near Chicago usually provides trackage which angles into a site and thus reduces the number of 90-degree railroad curves and related waste land areas often associated with provision of rail facilities.

One of the major industrial needs today is for industrial sites of sufficient size to allow some expansion. Depth of sites readily in demand range from 250 to 325 feet. Over-all size of parcels now in general demand is between 50,000 and 100,000 square feet. Demand is also evident for areas of 100,000 square feet, with dimensions of about 200 feet by 500 feet.

Provision of certain services within industrial areas may prove of great value. Many small concerns find provision of cafeteria or other employee-eating arrangements to be an undue burden. Central location of a good eating place should thus be considered. In conjunction with such a facility, indoor or outdoor recreational space may be provided.

Employee-parking necessitates use of considerable areas. Pooling of these areas may allow maximum use of sections not served by truck or rail and allow more intense development of strategic areas. Possible multi-story parking structures could be provided if demand is sufficient to warrant intense development. Roof parking may be economically feasible with the heavy type of construction necessary with multi-story structures, but would not usually be economically sound with use of one-story structures.

Central heating may be provided. The plant should be located adjacent to railroad facilities for bulk delivery of coal, but so situated that smoke will not prove a nuisance to any residential area. The interior street pattern should be arranged to assist adequate policing by controlled access but allow ready access to the area. Many industrial areas provide special policing services to cut down thefts and assure most desirable conditions for participating concerns.

⁸ A pioneering redevelopment study with a section devoted to specific industrial types has been prepared by a group of graduate students under the direction of Martin D. Meyerson of the University of Chicago. This study has been issued in preliminary form as a contribution to the work of the South Side Industrial Study Committee in Chicago.

Other services which may be provided include maintenance of private streets, maintenance of structures owned by the industrial district or private concerns, fire control, and public relations program including a publication and employee social organization.

To effectuate the development plan and maintain desirable industrial character for the district, control of two types will be of assistance. The first controls type of use and building volume through zoning. Deed restrictions regarding land use and building types also are valuable if they are recorded at the time of redevelopment. Nuisance industries may thus definitely be kept out, and other inharmonious uses restricted in the effort to preserve the long-term character of the investment.

Effectuation of Plan

Areas suitable for industrial redevelopment of necessity should be a logical part of the over-all city and metropolitan land use pattern. With determination of area definition and use, the next step requires land acquisition and re-use value appraisal. Determination of re-use value in many cases may involve a write-down of from two to four dollars, to a use-value of from one dollar to one dollar and seventy-five cents or two dollars a square foot. As in the case of the Jones and Laughlin redevelopment area in Pittsburgh, sometimes no write-down may be involved. Land values, of course, should definitely allow the site being redeveloped to compete in the industrial land market.

After consideration of price and terms of sale, the manner in which the site is disposed of will prove of great importance. The question of sale or lease proposals, and sale or lease to a number of plants, or to an organized or proposed industrial district, will require consideration.

To assure the continued sound character of a development, and to provide many conveniences for industrialists, in many respects the organized industrial district will

prove of real aid. These districts have proven of real aid in the past and now are being extended throughout the country.⁹ They usually sell or lease land and offer financial arrangements for construction of structures. Such financial arrangements include construction of a building by the district and leasing to the industry; construction by the district, with cost billing over a long period to an ultimate ownership by the industry; or construction by an industry on land purchased or leased from the district. With the last method of development, frequently the building is sold to an insurance company and then leased on a long-term basis with renewal privileges at greatly reduced payments.

Many operations thus are conducted by organized industrial districts which can most effectively assure sound development of areas both to the redevelopment agency and industries.

The tremendous potential of redevelopment for industrial purposes can be realized by first, an overall view of urban land use on a citywide or metropolitan basis as the case demands; second, purchases of selected areas; third, plan for the highest industrial use of the area; and fourth, a very practical method of making available certain areas with definite restrictions for preservation of the long-term character of the investment. The life blood of our urban areas may thus be renewed, and pioneering in more effective social and economic relationships play a positive role in the lives of our citizenry.

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⁹N.G. Hudson, "Chicago's Clearing Industrial District Pioneers Principle of Industrial Zoning," *Traffic World*, August 1950, pp. 55-59. Society of Industrial Realtors, *The Development of Industrial Districts* (Washington, D. C., The Society, 1949). Robert L. Wrigley, Jr., "Organized Industrial Districts With Special Reference to the Chicago Area," *Land Economics*, May 1947, pp. 180-198.

The Planning Process in Urban Development and Redevelopment

A CHIEF obstacle to rebuilding rundown parts of our cities has usually been the inability of private interests to assemble large areas of land and the impossibility of redeveloping the areas on an economic or

profitable basis, because of the high price of the land. Title I of the Housing Act of 1949, by providing for loans and grants, enables cities to purchase land and write off the excess costs so that it becomes available to

investors at a reasonable price. State legislation permits the use of the power of eminent domain for the purpose of assembling the land. Thus the two chief obstacles to redevelopment are overcome.

Why is so much emphasis placed upon "planning" in federal and state legislation and in every speech and article which deals with urban redevelopment? The reason is a simple one. Our cities got the way they are, and huge parts of them become substandard, largely because they grew haphazardly without the use of foresight and without the kind of controls that we now know are needed.

To a great extent, planning for redevelopment involves the same problems and the same techniques which we would use if we had the opportunity to plan new cities. The federal and state legislation of recent years has simply made urban redevelopment a practical possibility. Before their enactment, especially in certain areas, no one was able to do anything about built-up blighted districts and slums, dead subdivisions, and open land necessary for sound community growth. Now that the legislation permits the assemblage of the land and its sale at reasonable prices, the same old questions arise in regard to these districts that have been faced in the past in areas undergoing development for the first time. Some of these questions are:

(1) What are the appropriate uses for the land and how much should be earmarked for industrial, business, residential and public purposes? We cannot just put new buildings in place of old ones. There must be some reasonable assurance that these buildings will constitute the best use of the land, or nearly the best, in each particular area for the next several decades.

(2) How many people should be permitted to work or live in a given area? We know that overcrowding has often made for blight and deterioration. We also know that high land values have been one reason for the overcrowding. Query: Although we know what is bad, do we know how to arrive at figures that can be defended and enforced as reasonable?

(3) What standards should be set for open spaces, shopping use and community facilities?

(4) Practically every large city is bedeviled with traffic and other transportation problems. We really do not know much about the volumes and the kinds of traffic that are produced by different types of development. Nevertheless, redevelopment has to be related to existing and potential transportation facilities both for people and materials. Query: How do we tie up plans for redevelopment projects with plans for transit and transportation facilities?

(5) How are the public improvements to be financed; what is the order of priority among the different types of projects; and how do we get sufficient public understanding and support to assure reasonable public expenditures when they are needed?

(6) How do we get sufficient public understanding and support to obtain zoning and other forms of public controls over private development, which will really be effective?

Four Areas of Planning

Ordinarily four different geographical areas are involved in considering any urban development or redevelopment undertaking, and the planning problem and processes are different in each. These areas are:

(1) *The so-called project area*—the territory finally approved for development or redevelopment operations. This is the land which will be acquired, where buildings will be demolished, where streets and utilities will be installed, and which will be sold off at its fair value, chiefly to private investors, for building purposes.

(2) *The larger area which is scheduled for ultimate development or redevelopment, of which the project area is a part.* The federal government properly insists that the elements of the plan for the project area must be related to and consistent with the general plans for the larger redevelopment area.

(3) *The municipality as a whole.* Federal aid, under the law, is contingent upon the existence of a general plan for the development of the community as a whole. A general or comprehensive plan, in a narrow sense, is just a set of maps, statistics and studies dealing with some phase of city life, including population, transit, parking, airports, housing, recreation, schools, commerce and business. In a broad sense, it is a guide for the development of the community as a whole and recognizes the relationship of all the important phases of community life and activity. It provides an answer, as far as intelligence and foresight can permit, to definite needs in as economical a way as possible. Its great virtue is that each phase is coordinated with all the others. For instance, any plan for the development of industrial areas must be coordinated with the plan for railroads and motorways. Any plan for public transit must tie in with those for residential and shopping areas.

(4) *State, regional or metropolitan areas.* The federal government asserts that consideration will be given to the extent to which the general plan of the municipality in which the project is located is related to any state, regional or metropolitan plans.

The plans for each of these four geographical areas must dovetail with each other. Of course, to obtain sound results, the plan-

ning should be done in reverse order than in the one in which I listed them. The hitch comes because there is little state, metropolitan or regional planning, and general or comprehensive city plans are scarce. The danger therefore is that only the project areas will be planned and that mere lip service will be given to the necessity for having at least general plans for the larger geographical areas.

What Agencies Should Do The Job?

Under Title I of the Housing Act of 1949, the Housing and Home Finance Agency may enter into contracts for federal aid only with duly authorized local public agencies empowered by the state and local law to carry out slum clearance and urban redevelopment projects. The local public agency is defined as "any state, county, municipal, or other government entity or public body which is authorized to undertake the project for which assistance is sought." The legal and administrative machinery established locally to plan and undertake redevelopment programs, in line with the above definition, varies from locality to locality, depending on the enabling legislation of the jurisdiction involved. In some cities, special municipal corporations have been created, such as the Chicago Land Clearance Commission and the Providence Redevelopment Agency. In others—many southern cities for example—the responsibility has been vested in local housing authorities. In some, the city itself acts as the local public agency through its chief executive, its planning commission or another department or combination of departments. In still others, like St. Paul and Nashville, local housing authorities together with city and state are jointly developing programs.

In those cities which follow logical procedures, the planning commissions designate which areas should be developed first and then determine the general standards needed before a detailed plan for any area can be prepared. The planning commissions prescribe the future uses of the areas, the location of major traffic arteries, the approximate number of families for whom residential accommodations should be built, and the approximate amount of space to be set aside for schools, parks and other facilities. In those cities, special authorities or commissions follow through with detailed plans for the project area and negotiate with prospec-

tive investors. They then submit the results to the local city planning commission for comment or approval, and ultimately to the local legislative body for final approval.

Three Crucial Questions

The three following paragraphs suggest questions which I think are particularly crucial in planning for development and redevelopment in the larger metropolitan areas.

(1) The confusion and diffusion of public authority and responsibility among local government units, and the way in which these hinder rational planning and any action in conformity with it.

(2) The capital budget system is a device for planning for the financing of public improvements, including time priorities for various public projects. The neglect of the capital budget system is partly responsible for the ineffectiveness of past planning. Debt limitations add to the difficulties. They are particularly troublesome in times of inflation because the assessment base does not go up as fast as the costs of public works. These relatively inflexible limits are also an important factor in the strong move towards special districts and authorities. Query: Can we learn how to set up a capital budget or a series of capital budgets, so that plans for development on a metropolitan basis can be carried out?

(3) The issue of industrial dispersion in metropolitan areas as a defense measure is the latest problem in metropolitan planning. On August 10th, the President promulgated an industrial dispersion policy which provides that the Director of the Office of Defense Mobilization, in carrying out his task of directing, controlling and coordinating all mobilization activities of the Executive Branch of the Government, shall establish general standards with respect to dispersal. These must be followed in the granting of certificates of necessity, in the allocation of critical materials for construction purposes, and in the making of emergency loans growing out of defense production. On the same day, the National Security Resources Board distributed a pamphlet entitled "Is Your Plant a Target?" which contains the outline of a program intended to accomplish industrial dispersion of new and expanding industry.

Conclusion

I stress metropolitan areas or regions because of their enormous importance in urban planning and redevelopment. In 1950 these areas had more than one-half of the total population of the United States. Fourteen of them had populations of one million or more, and the aggregate population of these was just a shade less than 30% of the whole country.

Planning for redevelopment in metropolitan areas is a complex and difficult job. It is not only a matter of size, but the local government organization is Balkanized—i.e., split up among dozens of municipalities or other

units, plus a confusing overlay of special districts, public corporate authorities and the like. This situation is an obstacle to effective administration as well as to planning. Until new solutions are found, or known devices are more widely adopted, development in metropolitan areas will proceed but stumblingly, and in too many cases without benefit of the foresight, coordination and proportioning which is the essence of planning.

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First World Land Tenure Problems Conference and Report of Its Steering Committee

ANY effort of scholars to probe into the ramified problems of land tenure as they exist throughout our world today draws the attention of readers of this *journal*. A unique effort in this direction was the first conference on world land tenure problems which was held on the campus of the University of Wisconsin in the Fall of 1951 under the sponsorship of the University of Wisconsin, and with the cooperation of the Technical Cooperation Administration of the Department of State, the Economic Cooperation Administration, and the United States Department of Agriculture. The conference brought together a cross-section of agricultural economists, research workers and government experts from forty countries. Out of their parleys came a set of findings and a "steering committee report" which may be a fair indicator of things to come in the broad area of land tenure reform.¹

This does not necessarily mean that the action recommended will be carried out precisely as stipulated therein. When moved into the action area the general procedural plan for the creation of a permanent organization to study world land tenure problems may take a somewhat different form than that laid down in this first articulate attempt to outline a structural plan of work on a scientific level.

The delegates were in attendance as individuals. They did not come as representatives of any official agency or organization. This was a stipulation adhered to by the conference organization in issuing the invitation. Suggestions of scholars and scientific organizations were sought before invitations were sent out to insure as representative a selection as possible.

A reading of the list of persons who responded to these invitations, their titles, and the countries from which they came sounds like a macedonian cry from the landless and surely opens a door for further exploration into the problems of the changing land tenure patterns throughout the world. They came from

¹ The steering committee was composed of Akram El-Ricaby, (Chairman) Director-General, Hejaz Railways, Damascus, Syria; Jose E. Velmonte, Dean, College of Business Administration, University of the Philippines; Albert Costa, Civil Administrator, Ministry of Agriculture, Paris, France; M. L. Dantwala, Department of Agricultural Economics, University of Bombay, India; and Claudio Romero, Director, Department of Plans, Institute of Agrarian Reform, Asuncion, Paraguay.

Argentina, Brazil, Bolivia, Burma, Chile, China, Colombia, Costa Rica, Cuba, Egypt, England, Finland, France, Germany, Greece, Haiti, India, Indo-China (Cambodia), Indonesia, Iran, Israel, Italy, Japan, Lebanon, Libya, Malaya, Mexico, Netherlands, Pakistan, Paraguay, Peru, Philippines, Sweden, Syria, Thailand, Turkey, Uruguay and Venezuela.

The conference was conducted according to a rather unusual pattern. In addition to regularly-scheduled general sessions throughout the five weeks for all delegates and other participants there were also small workshop groups that met daily for intensive study and research work. The university's library set aside and equipped a reference room for use of the delegates and a librarian was in constant attendance. A bibliography on land tenure was compiled and will be maintained permanently.

The entire group met together daily to take up questions of tenure improvement—the financial history of land redistribution programs, experiences in consolidation of holdings, equitable tenancy arrangements, and tenure problems in primitive economies. The workshop sessions delved into the questions of

population pressures on land, availability and productivity of credit, management of public lands, land tenure surveys, the place of co-operatives in land tenure improvement, experiences in population resettlement, land consolidation procedures, surveys and land title registration, financing land distribution, machinery stations, legal relationships, irrigation development, and comparisons of different farm management schemes.

An important feature of the conference program was the scheduling of weekend field trips. Each delegate spent at least one full day in the home of a farm family. One-day trips to various types of farming areas in the corn belt, in dairy areas, and in the cut-over regions were enlightening and informative experiences to the delegates.

The sponsors of the conference held out no promise or hope that the conference would solve problems but did urge open discussion and interchange of experiences and ideas as basic requirements for democratic action to that end. With this factual background in mind the report of the steering committee, which grew out of the daily conference sessions, can be read as a document of considerable significance. (*Editor*)

Report of the Steering Committee, World Land Tenure Conference, University of Wisconsin

General

The major contribution of this conference is the realization that land tenure is a world problem and an extremely urgent one at that. If social justice is to be the foundation of democracy, land tenure needs the attention of the free world.

The excellent work of agencies of the United Nations in the field of land tenure and land reform is not unfamiliar to the conference. The report of the Economic and Social Council of the UN on land reform, dated September 21, 1951, for example, sets forth recommendations which most of the

delegates have read and with which they are in general agreement. But we believe that the kind of conference we have had can prepare the way for the actual carrying out of such recommendations and has prepared the soil for greater international cooperation on land tenure problems. Here at the University of Wisconsin we have had an opportunity freely and openly to discuss our mutual problems, unhampered by national responsibilities, speaking always for ourselves alone, not for our governments. Further, this conference brought together a happy blend of administrative and academic people. The

administrators brought hard, immediate, practical problems; the university people, research results and broad perspectives. In short, the conception of this conference was sound and its pattern must not be abandoned.

The committee used the dual criteria of economic efficiency and social justice, and discovered that there was hardly any part of the world where the prevailing tenurial pattern satisfied these in a full measure. It also became convinced that there could not be efficiency without justice and there could be no justice without efficiency.

We found that unhealthy features in land tenure are due either to basic backwardness of an economy or to institutional maladjustments, social, economic and political. We realized that the land tenure problems had roots spread through the entire economy and the remedies had, therefore, to be sought both within and without agriculture. The problems of pressure and control of population, industrialization, distribution of wealth and income, tax, inheritance laws were as germane to our discussion as those of land reclamation, land consolidation and landlord-tenant relations. We realized that the land tenure specialist may go wrong if he ignores the integral relation between agriculture, the rest of the economy and, indeed, the social order. We also realized the prime importance of education and communication in a land tenure program. Creating an ideal economic farming unit and putting it in the hands of an illiterate farmer bound to the old ways of agriculture by superstition and custom does little to solve the basic problem.

Comment on Some of the Major Problems Discussed at the Conference

Maldistribution of Land Ownership. One feature of the land tenure problem which appears to be fairly ubiquitous is the concentration of ownership of land in a few hands. Whether the land is scarce or abundant, somehow it has become concentrated in the hands of a comparatively small class of large landholders, many of whom take little interest in cultivation. We have thus a queer phenomenon of a few large—and often badly managed—farms existing side by side with a very large number of small and uneconomic farms in many countries of the world. Purchase and redistribution of land either by sale, lease, or otherwise, has been a major plank of agrarian reform

throughout its history. After World War II this program has received a fresh impetus. Land reform in Japan is an outstanding example of this. Similar measures are contemplated in India, Pakistan, and Formosa.

For a proper appreciation of these reform measures, it is necessary to emphasize that ownership rights in many countries, especially in the Orient, are of a dubious origin and legally and morally not well established. This, along with the exigencies of economic and political situations, determines the manner and extent of compensation given to the dispossessed owners. What distinguishes the democratic from the totalitarian approach to the question is whether or not the reform is sought to be accomplished by due process of law and is subject to judicial review. If the legislation authorizing purchase has been passed by a democratically constituted legislature and respects the person and individuality of the divested parties, the extent of compensation, though of course vital, becomes less crucial.

For the country which wishes to embark on a land purchase and redistribution program, there is much experience in various parts of the world on which to draw. There is experience in bond flotation and the financing arrangements, in countries both with security markets and without. There is also important experience in flexibly defining economic farming units under varying conditions of soil, climate and market. Laws fixing limits on maximum size of holdings exist in several countries. Progressive taxation as a means of forcing neglected land or land owned by absentee landlords into the market exists as do arrangements to prevent excessive fragmentation of the redistributed land. There are also possible alternatives to land purchase and resale schemes which may, under some circumstances, free capital to be used for other important purposes.

Small and fragmented holdings constitute a major obstacle to efficient farming. And yet it is a universal phenomenon in all overpopulated countries. Strangely, however, it is also found in countries with a favorable man-land ratio. Whereas in the former, it is a symbol of over-population and under-development, in the latter it is an offshoot of faulty social and political arrangement and institutions.

A satisfactory solution of the problem has to contend with established law as well as custom and tradition such as those affecting

inheritance laws, property rights, distribution of wealth and income. On the technical side there is enough experience with land consolidation efforts and achievements in various parts of the world so that, if properly assimilated and articulated, it could be used to advantage with situational modifications. Once consolidation has been achieved, active training programs for the farmers as well as arrangements to prevent refragmentation through the operation of inheritance laws are required. Also required is a speeding up of consolidation work through the use of aerial photographs, stream-lined procedures, speedier surveying and the like.

The problem, however, assumes altogether different dimensions where, even after consolidation, the size of the individual unit remains too small and uneconomic. If there are limitations on the removal of surplus farm population to nonfarm occupations, solutions will have to be found within agriculture, at any rate for the short period. Cooperative farming is suggested as one possible remedy, with a varying degree of integration with local conditions. Though this does not "solve" the problem of full efficient use of resources, it does mitigate it to some extent.

Credit. If an enterprise has an efficient and an economic unit of operation, the problem of credit is not particularly difficult. It is only when the borrower is considered "uncredit-worthy" by the normal financing agencies that a question of special and alternative arrangements springs up. Unfortunately, in many parts of the world, a large number of farmers are outside the pale of organized credit. This is especially true when substantial credit is needed to purchase land or capital equipment. Mere transfer of ownership rights from one class to another might not result in improved use of land, unless means are available in the new owners to increase their productive efficiency. The very process of agrarian reforms, such as the acquisition of new rights, etc., will set up pressure for additional funds, while their supply, on the other hand, is likely to contract to some extent by the enforcement of measures like restrictions on transfers and subletting of land, etc. The provision of suitable credit, therefore, assumes great importance in a plan for achieving any improved pattern of tenurial and land-use relationship. There are two major types of institutional agencies which could be organized to meet the situation—cooperative and/or state-sponsored

corporations. In some countries, the risks of financing the severely disadvantaged class of cultivators is so great that, without the active support of the state, cooperatives might find it difficult to finance them. In a democratic state, the objectives of government policy and of the cooperatives run parallel to a great extent. To the extent they do, there is no reason why each should not draw upon the other to achieve the common end.

Government-to-government loans from developed countries to under-developed countries are needed to start the flow of credit from state agencies to cooperatives (and other local lending institutions) and thence to the farmer. A state-sponsored corporation may thus, in certain circumstances, act as a central reservoir of loanable funds on which the cooperatives could draw in times of need.

There should, however, be proper safeguards for insuring that the credit supplied is used for the purpose for which it is given, viz.,—the land improvement. The provision of loans, therefore, internal as well as international, should be conditioned on the development of a well-organized mechanism for supervision and check at every stage of the application of funds, so that the credit given may be at once both safe as well as productive. The organization of a full-fledged extension service side by side with the provision of credit under the authority of a farm and home administration would be a step in the right direction.

It may be not only futile but a total waste to give credit to the uncredit-worthy farmer without providing him with technical supervisors and assistance until he becomes qualified to carry on his home-making and farming operations in a sound and rational manner. This will involve attention to tenure, technology and provision of social services like health, and education.

Equitable Landlord-Tenant Relations. As already indicated, one of the most serious issues raised at the conference is the concentration of landownership in many underdeveloped countries. This has invariably given rise to systems of tenancy that have proven ruinous to farm workers and have brought about depressed conditions in agriculture. It has been emphasized that the ultimate goal in land tenure improvement is to secure the ownership of land for the tillers of the soil. While this has been accepted on broad principles as the ideal tenure system in free societies, farm tenancy has always a justifiable place in any

system of progressive agriculture. A rational program of improving landlord-tenant relations is therefore necessary to raise the efficiency of farming, afford security and to secure fair contractual arrangements to safeguard interests of tenants and landowners. Especially is this important, and the need very great, where tenants are in the category of share croppers such as those found in many countries of Asia, Latin America, the Middle East and the USA. As a group they are generally ignorant, without much capital, hopelessly bound to the land because of debt and, as a consequence, exploited, oppressed and in dire poverty. Tenancy legislation is only one of the lines of improvement indicated. Education, health protection, social security and provision of cheap and easy credit are other lines.

Experience in many countries in finding equitable landlord-tenant relations may be profitably utilized in undertaking programs of improvement of the tenant's status.

Possibilities of Cooperation in Land Tenure Improvement. Cooperation is one of the issues raised in the search for improvement of tenure conditions in many countries. It would seem that where peasant farming has degenerated through fragmentation into small uneconomic farm units on account of high pressure of population on land leading to conditions like extortionate rents, low education and low literacy, high birth and death rates, poverty, disease and debt, cooperative farming appears, prima facie, an attractive solution; but as experience has proved its limited success, in the absence of high character personnel leadership it may, in countries under those conditions be tried out on a pilot basis, and gradually extended if success warrants such extension.

Land Reclamation and Settlement. In many countries strong efforts have been made since World War II to alleviate maladjustments in agriculture by reclaiming land and settling farmers on it. Programs in Venezuela, Chile, Egypt, Syria, Holland, Italy and other countries are in point. Perhaps most dramatic and inspiring of all has been the program in Finland. Such projects not only permit experimentation with technological innovation like mapping by aerial photography and mechanized land clearance methods to make land more speedily available for settlement, but also with land tenure and credit arrangement to prevent fragmentation, induce good

husbandry and permit land ownership without unduly burdensome debt.

Continuity for the Work Started at this Conference. There are needs in the world that are great and urgent but which by their very nature cannot be effectively met by political organization, whether they be of diplomats connected with individual governments, or international agencies like the United Nations. Land tenure is one of these, but there are many others. Universities and their technical staffs have an opportunity to render enormous service to world welfare and world peace in undertaking in these fields those types of services which the University of Wisconsin has done in Land Tenure. We believe this pattern has much to commend itself and deserves widespread adaptation throughout the world.

Those of us who have attended the World Land Tenure Conference at the University of Wisconsin have received much stimulation and have acquired many new ideas which we will take back with us to the problems which will face us at home. It would be tragic to permit this stimulation and inspiration to die with the termination of this conference. To prevent this and to provide for the continuity of the work started at the conference the steering committee makes the following recommendations:

1. There should be established at the University of Wisconsin a permanent central committee with both resident and corresponding members. The resident members shall be three professors on the staff of the University; the corresponding members shall be selected on a regional basis in a manner that may be prescribed by the resident members. The resident members, in the orderly discharge of the duties listed below, may from time to time constitute such executive subcommittees as may be necessary to accomplish the objectives in view. This central committee shall be charged with the following duties: (1) to provide for a regular exchange of information between the countries represented at this conference and such other countries as may care to join in this activity, and in this connection to periodically publish a review of progress in land reform all over the world; (2) create regional subcommittees with a view toward holding regional conferences to work with land tenure problems in the same objective manner that has characterized this conference; (3) to give continuing attention

and encouragement to the trainee program recommended later in this report; (4) to encourage and support the building up and maintenance of an international land tenure lending library of the type later described; (5) to sponsor the exchange between countries of personnel expert in the handling of land tenure problems; (6) to recommend schemes for international assistance and research in the land tenure field; (7) to encourage in every way research in the land tenure field; (8) to collaborate to the greatest possible extent with the appropriate agencies of the United Nations, with the international conference of agricultural economists and other international organizations to supplement the work already being done by them in the land tenure field; and (9) to do anything else necessary to give continuity to the crucially important work started at this conference.

2. As just suggested, the central committee should sponsor and encourage the holding of regional meetings on land tenure problems, each country to be consulted as to regional meetings in which it desires to participate. These regional sessions should be attended by representatives of countries where similar conditions and needs exist such as the regions of the Near East, Southeast Asia, Latin America, etc. It may be possible to arrange for annual regional meetings to be held in rotation in different countries.

3. The trainee program started in connection with this conference should be continued for the indefinite future. This program should involve not only the training of non-Americans in American universities; it should also involve the training of Americans in other countries of the world. It is felt that the trainees who are now at the University of Wisconsin and those who come to that University in the future will provide the necessary continuing stimulus which will make it possible to continue the work of this conference through the central and regional committees above suggested. For example, the trainees now at the University might during the course of the present academic year prepare a detailed analysis of some of the major problems discussed at this conference, elaborating extensively upon the necessarily summary comments in the first part of this report. In subsequent years trainees going to and from America could provide the living nexus which would hold the world-wide interests of this conference together.

The chief burden of providing most current information about land tenure and land reform programs in various parts of the world would fall upon these trainees who could also, perhaps, aid in the preparation of periodic reports with respect to such programs. The Central Committee should ensure that this trainee program is tied up closely with the research of the type mentioned in the next paragraph.

4. It is strongly urged that in its new library building about to become a reality, the University of Wisconsin maintain an up-to-date and world-wide land tenure library with facilities for the lending of land tenure materials to interested and reliable persons anywhere in the free world. If such a library is established, the steering committee feels confident that it can without qualification promise for each delegate that he will keep this library supplied with the latest land tenure materials from his own country, or if cost considerations require it, to at least provide the library with a list of such materials.

5. A prime necessity is accelerated and broadened research in the land tenure field. We must have the facts if we are to act intelligently. This conference has disclosed clearly the existence of many problems common to two or more countries. Comparative land tenure research criss-crossing national boundaries is called for. This can best be accomplished by collaborative arrangements between universities within the same or in two or more countries. The central committee should offer its services in helping plan such research and in actually administering it and should also act as a stimulator of research, particularly comparative research. It should offer its services as a screening agent for international and other agencies in the field of international land tenure research.

It is suggested that priority may be given to the following fields of research:

(1) The process of industrial development in under-developed territories, as exemplified, for instance, in the Tennessee Valley, taking into consideration the economic and sociological aspects and paying particular attention to the integration of industry and agriculture; (2) Conditions influencing population trends in under-developed territories and ways and means for keeping population growth in check;

(3) (a) The development of supervised credit techniques as a means of improving the management efficiency of small holdings and raising the level of production. (b) Cooperative farming and other forms of joint organization, e.g., the proportional profit farm of Puerto Rico and the group farming technique used in the Sudan and the Fiji Islands, as alternative measures for making the fullest use of resources and raising the level of production under conditions of heavy pressure of population on the land, and appropriate types of farming pending the creation of conditions which would enable family farms to be successfully established; (c) Economic and social implications of mechanized farming in backward agricultural economies;

(4) Comparative analysis of land reform legislation and the effect of such legislation on agricultural production in the different countries.

6. Land Tenure problems should be given consideration on the programs of international conferences dealing with natural resources lest the work done at this conference

and by the central committee might remain confined to the purely academic sphere. It is recommended that the results of the research and the solution which their committee may suggest should be examined, with a view to translating them into practice, by international conferences at the official and governmental level convened from time to time under the auspices of the FAO of the UN.

7. If called upon by any government or international agency for advice, the central committee should feel free to comment on proposed schemes for international research or assistance, financial, or otherwise, in the land tenure field.

Respectfully submitted,

THE STEERING COMMITTEE OF THE
WORLD LAND TENURE CONFERENCE

Akram El-Ricaby, Syria, *Chairman*
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Book Reviews



On the Accuracy of Economic Observations. By Oskar Morgenstern. Princeton: Princeton University Press, 1950. pp. ix, 101. \$2.00.

Here is a monograph in the neglected field of "defensive statistics," which has needed writing for a long time. Now that it has appeared, it should be required reading for the consumer of economic statistics, but instead it seems likely to be read mainly by the enemy, the producer. This lamentable situation should be remedied by a condensation and popularization of pages 1-27 and 49-64 of this study, to be included in every undergraduate statistics textbook until something better comes along.

Professor Morgenstern's thesis is that most, if not all, published economic statistical series gain precision at the expense of accuracy, and that indeed their inaccuracy is so great as to vitiate their usefulness at many points where they are currently being applied. It is not merely a matter of the last two or three decimal places not being technically "significant;" this would be news to very few. Rather the point is that the range of error, estimated as 10 or 20 percent or more, is large enough to give us pause before using the figures at all in the inductive testing of economic theory, or in the "implementing" of economic policy. (The study was assisted financially by the U. S. Office of Naval Research with a view to estimating the reliability of the contents of the Leontief input-output tables used in the "linear programming" of mobilization and allied activities. While no conclusions directly pertinent to the Leontief tables or linear programming are included in the Morgenstern monograph as published, the negative implications are perfectly clear.)

Part I of Morgenstern's essay deals with sources of error in economic statistics: The lack of experimental design, the hiding of information, the incompetence of interviewers, the ineptness of questionnaires, the cloudiness of concepts and classifications, the

lapses from simultaneity—all are present, and more beside. Nevertheless, this section sins somewhat on the side of politeness, in omitting as a frequent (and I fear increasing) source of error the political and economic pressures upon and within the statistical reporting agencies themselves. Thus, to mention an example away from home, Japanese national income statistics under the Occupation have been the products of constant "negotiation" and compromise between the Japanese Government and SCAP. The Japanese have ever sought to maximize the remaining need for assistance, the Occupation to maximize the degree of recovery attained, and the "facts" have sometimes been lost in the scuffle. Less frequent, but dangerous enough to mention, are cases where persistent presentation of results counter to someone's official "line" is made the basis for witch hunts and disloyalty charges à la McCarthy.

Morgenstern's second part is devoted largely to a statistical sideshow, or chamber of horrors. He has collected, and here publishes, a collection of independent estimates of approximately the same economic magnitudes, which differ ludicrously among themselves. Examples are drawn from trade balances, employment statistics, crop reports, production data, and many more. The conclusions are telling in their cumulative impact, but this reviewer has three questions to ask:

1. To what extent are differences due to errors of measurement, and to what extent to differences in the concept to be measured? There is a danger that the casual reader may attribute the divergences to the former factors exclusively, although Morgenstern notes, at least in passing, when the latter factor is present as well.

2. May not the most comical of the errors be avoided, or at least minimized, by the approach to independent checks entailed by the double-entry or "social accounting" approach which is coming into favor in many areas? At the very least, may not "statistical discrepancies" warn us when we stand on infirm ground? May not attempts to reduce

them improve our techniques of investigation?

3. In many cases, the whole is considerably stronger than its weakest link, or even than the sum of its parts. The over-all trade or payments balance of the United States, for example, can be gauged with greater accuracy than its balance with any single foreign country or region. Random errors in estimating components of such a total as the gross national product, large though they may be, should tend to cancel each other to some extent, leaving us a total more valid than any of the individual parts would suggest, especially those parts (like consumer savings) computed as residuals without adequate independent check.

Statistics will continue to be produced, consumed, and doubtless negotiated. Professor Morgenstern, I am sure, would not have it otherwise. But whenever "offensive" statisticians take themselves too seriously, or proclaim conformity with their results as a test of truth and validity, here is a "defensive" antidote ready to hand. It should be publicized and made available outside the charmed and closed professional circle of the professional statisticians. It is too good for burning, or yet for burial under some genteel conspiracy of silence.

M. BRONFENBRENNER

University of Wisconsin



Economics with Application to Agriculture. By E. F. Dunmeier, R. B. Heflebower and T. Norman. New York: McGraw-Hill Book Co., 1950, 3rd edition. pp. xv, 718. \$5.00.

There are a number of different organizational approaches in teaching the first course in agricultural economics. In some schools a principles-of-economics course precedes agricultural economics, in others a farm management course serves as an introduction to the subject, while in other institutions the general economics and agricultural economics are blended into one course, usually covering several terms.

It was for the latter approach that Dunmeier and Heflebower was most useful. The revised third edition, carrying also the name of Theodore Norman, continues to fill the role of earlier editions. It is, however, possible for the individual teacher to pick chapters

from the book and with supplementary material use the text for beginning courses which have a somewhat different objective than that of the authors.

The volume is larger than the earlier editions, representing an effort to incorporate some aspects of recent developments in economics. Also, it was necessary to incorporate material on institutional changes and public policy developments since the first and second editions in 1934 and 1940, respectively. Unfortunately, like most authors, it is easier to add than to delete once a manuscript has been prepared. The result is a volume of over 700 pages. It represents a compromise between aggregative analysis and microanalysis but which is heavily weighted in favor of the more traditional approach. This reviewer is left with the impression that if there had been no previous editions the book would have been both shorter and more dynamic and aggregative in its approach.

For those institutions where the first course offered is in farm management, this book has limited usefulness. Only three chapters discuss comparative advantage, diminishing returns and farm organization. Hence, more detailed texts are likely to be used. For a possible second course with more general applications the text will be useful provided the teacher carefully selects the chapters to be used.

It is, of course, virtually impossible to write a book which will serve all the different approaches in teaching agricultural economics. It certainly can be argued strongly that in the first two or three courses in economics and agricultural economics the student should develop an understanding in the areas covered by Dunmeier, Heflebower, and Norman. It would be helpful for competent teachers using the various approaches to consult together and exchange experiences with a view to determining which approach provides the strongest foundation for (1) those students majoring in other areas of agriculture, and (2) students planning to major in agricultural economics.

LAWRENCE WITT

Michigan State College



Land Planning Law in a Free Society. A Study of the British Town and Country

Planning Act. By Charles M. Haar. Harvard University Press. 1951. xiii, pp. 213. \$4.00.

Mr. Haar has written a careful, first-hand description of the British Town and Country Act at work. It is clear that the author seeks to sift the worthy from the unworthy features of this controversial legislation as a guide to public policy in land use control in the United States.

The book is organized in five main sections: (1) The Machinery of Town and Country Planning, (2) State Supervision of Land Use, (3) The Nationalization of Development Values, (4) Public Ownership of Land, (5) Some Tentative Conclusions.

The first section provides a useful sketch of the background for planning legislation in England. Mr. Haar successfully carries the reader from the national plane of administrative pronouncements to the complications of local politics. His discussion of the inter-relationships of Government departments under the Act suggests that the battlefield for the control of land use in England may well be shifting from the town council to the national Government level, with the Board of Trade, Ministry of Transport, Central Land Board, and the Armed Services jealously guarding rights and privileges and with the Minister of Town and Country Planning serving as arbitrator.

It is apparent in the second and third sections that the full unravelling of the complexities of the Act cannot be said to have occurred as yet. The author finds that much of the administrative confusion under the Act is owing to the "chameleon-like word" value (p. 114), which is inadequately defined in the Act itself and which has been subject to numerous administrative interpretations since the Act was passed. His description of the controversy over the percentage of the difference between Consent and Refusal values to be levied as a Development charge (pp. 108-114) is of particular interest at this time, when the policies of the Central Land Board are under Conservative attack.

Mr. Haar has maintained a judicial poise throughout. Convinced that the determination of land use patterns by reliance upon the unfettered market mechanism has provided an unsatisfactory environment, he does not fall victim to the "planners" delusion that what is "planned" is "good." (p. 6)

The author concludes that the English people have achieved their main purpose in planning the use of land. (p. 166) However, much that he says in his conclusions appears to agree with critics of the Act. (See *Land Economics*, November 1949 and November 1950.) He asks, "Would it not have been simpler in the long run to have nationalized the land outright?" (p. 165) "There will undoubtedly be a general [he must mean real or relative] depreciation of the value of land with developmental potential . . . fully developed land should appreciate in price." (p. 160) He levels a basic criticism at the development charge in pointing out that it falls upon the point of development "just where the active and creative energies of the community focus." (p. 163) Finally, the author hedges in a final conclusion that "the physical planners in Britain now have a great opportunity in the 1947 Act. But its success or failure will depend upon the administrative reality with which it is infused." This is undoubtedly the test which the people will impose through the Conservative Government.

In granting the Sheldon Travelling Fellowship to Mr. Haar in 1948, the Harvard Corporation has made possible the first comprehensive analysis for the American reader of the British Town and Country Planning Act.

PAUL F. WENDT

*School of Business Administration,
University of California*



Capital Budgeting. By Joel Dean. New York: Columbia University Press, 1951. pp. 174. \$5.00.

Professor Dean has brought his unique theoretical and practical background to bear on the production of work that should be of considerable value to both business men and academicians. The book is concerned essentially with the problems faced by top management of the individual firm in the selection and timing of projects requiring capital expenditures. It is devoted to the "kind of thinking necessary" rather than to administrative procedures and routines. Exploration is made of the various types of capital expenditures and a classification of these useful for the purpose is developed. Various methods of attacking the problems are noted

and the advantages and disadvantages of each are analyzed in the light of the special characteristics of each type of capital project. As to methods, that of estimating the probable rate of return on the capital investment and using the probable cost of capital as a cut-off rate is given heavy weight. But the author notes types of situations in which modifications of and departures from this central method are advisable. In general the book tries to systematize the thinking on such matters.

The value of the book to top level management is obvious. Although the book is a "firm's eye view" of the problem, it should also be of interest to the general economist for the light it throws on limitations faced by the individual firm in attempting to time its capital investments in such a way as to smooth the aggregate capital production curve of the community. Also, economists concerned with the question as to whether business concerns should be forced to a market test of their capital expenditures will find on pages 54 to 57 instructive reasons for the aversion shown by many firms to external financing and on pages 57-59 additional light on the predilection for internal financing. Instructors in integrating courses in business administration, such as business policy, can make use of the entire content; for the problems cut across such diverse departments of the business as that of the treasurer, the comptroller, the sales manager, the production superintendent, and the personnel manager. Warning should be given that the book is far from easy reading in spite of an uncommonly good organization.

HAROLD G. FRAINE

University of Wisconsin



Interracial Housing. By Morton Deutsch and Mary Evans Collins. St. Paul: The University of Minnesota Press, 1950. pp. 173. \$3.00.

This book once and for all lays the old ghost that whites and Negroes cannot live together as equals in close association. It adduces convincing evidence that non-segregated patterns of residence will lead to friendly relationships between white and Negro families and induce many of the whites to give up the usual prejudiced miscon-

ceptions which thrive in the absence of close association.

Two interracial low-rent public housing developments in New York where Negro and white families were integrated throughout the project were compared with two similar bi-racial housing projects in Newark where Negro and white families lived in separate buildings. Compared to the segregated projects the integrated interracial projects in New York revealed more friendly neighborly contacts between the races, a social atmosphere more favorable to interracial mingling, more favorable attitudes among white residents toward Negroes in the project and toward Negroes in general, and more favorable attitudes toward living in an interracial development.

These findings give strong support to the contentions of progressive housers in the North and West that the integrated pattern is the best for an amicable mixing of the races. Housing administrators have long needed convincing data of this sort. Mr. Deutsch and Mrs. Collins have provided it with high professional competence in this study. It is perhaps worth noting in passing that where research is to be used for a social goal the professional competence of the research is not always the most important consideration. The many not-too-sound studies linking deteriorated housing with social disorganization were quite effective in arguing the case for slum clearance and public housing. But in the long run the sounder our research, the surer ground our social reforms will rest on. This particular study of Deutsch and Collins has already been the basis for an extensive modification of the residency patterns of Newark Housing projects.

Although of great interest to housing practitioners, this study is perhaps of less interest to students of intergroup relations. Deutsch and Collins frankly admit that the scope of the study is not extensive enough to tackle the two questions: (a) what is the social process through which increasing the close interracial contacts of persons bring many of them to yield their earlier prejudices and (b)—perhaps the same question in a slightly different form—what are the differentia that account for one prejudiced person yielding his prejudices, while another does not. The purpose of the study leads Deutsch and Collins to focus on the comparison of the attitude and contacts in the integrated

project with those in the segregated projects. The two key questions above focus attention on the following data: (a) 58% of the housewives in one of the integrated projects and 40% in the other either have mixed, reserved, or avoidant feelings toward Negroes despite their close association (page 83); (b) about a quarter of these housewives in the integrated projects respond negatively to the idea of having Negroes live in the same building (page 94); and (c) about two-fifths of the housewives in the interracial integrated projects recommended a city policy of assigning white and Negro families to separate projects. We very much need to know the differences between those housewives that do not readily take to interracial housing and those that do. By showing the differences that education, liberalism, and religion make in modifying the reactions of respondents within a given project, a few clues are forthcoming, but they frequently rest on just a handful of cases. Suggestive hypotheses are presented as to which types of housewives are most likely to change their attitudes in interracial situations, but without statistical support. It is unfair, of course, to criticize a study for what it did not intend to do. But this does raise a crucial question of study design which many inquiries of this sort must face. Most research must operate on limited funds and the allocation of those funds is often the key question in design. Frequently the choice is between *greater detail* from interviews with a few respondents or less detail from more respondents. I would estimate that of the many questions in the long hour-and-one-quarter interview of about one hundred fifty questions, not more than one fourth of the questions were used in the final report. This is a common experience all of us research workers often encounter. But it raises the question: with a more adequate pre-testing and pre-analysis of our questionnaires, could we not design an interview that would be say one third as long, but which would permit us to double the number of people interviewed and thus provide statistical backing where often the studies are weak?

In the absence of these statistical data we should perhaps try to make more effective use of the non-statistical interview data. The direct quotes from housewives that Deutsch and Collins present are indeed tantalizing. Thoughtful analysis and presentation of

direct quotes in conjunction with statistical tables often gives what the boxers call "the old one-two punch."

JOHN P. DEAN

Cornell University



Powell of the Colorado. By William Culp Darrah. Princeton University Press, 1951. pp. 400. biblio. \$6.00.

John Wesley Powell—geologist, explorer, professor, army engineer, ethnologist, concurrently director of the United States Geological Survey and the United States Bureau of Ethnology; known as "the Major" in the vast canyon and arid regions of the west—was not the first man to see the potentialities of those areas. There were many busy plundering the public domain. Powell, more than any other man of his time, saw the importance to the nation's welfare of that mountain region and devoted tireless efforts to safeguard the public interest and develop the regions' possibilities.

There have been many self-made men in America. Major Powell, with only desultory and incomplete college work done previous to the Civil War, became, by his field researches, tireless efforts at classification of specimens and original scientific studies, a college professor of geology at the age of thirty-one. It was one of the important milestones of his career.

He quickly developed a new kind of teaching of science, studying nature itself, rather than books. He lectured extensively throughout the state, advocating the introduction of science into the curriculum of the elementary schools. More important, his college position became an agency for promoting his expanding field research.

From this point on, his career became increasingly dramatic. The range of his explorations was extended. In 1867 he organized and carried through a scientific exploration of the Pike's Peak region. In 1868 he interested the army, Congress, and Smithsonian Institution, in a study of several hundred miles of unexplored territory along the upper Colorado river. This exploration of the Continental Divide convinced him that the Colorado river canyon could be traversed by the right kind of boats. In 1869 he made the first of his two trips down the raging

Colorado River. But it wasn't just a boat-ride. He made extensive geological and geographic records, studied the homes of the cliff dwellers on the canyon walls, and emerged from the exploration with an intense conviction that the canyon country could be developed into an important national asset. Most of the remaining years of his life were devoted to convincing the nation of that fact and getting federal legislation to make his dreams realities. It was a difficult, uphill struggle, with plenty of powerful opposition.

His program called for new policies in Indian affairs, revision of the land Acts, preservation of the mineral deposits of the public domain, irrigation dams and the development of agriculture through controlled water supply, the checking of much of the soil erosion and consolidation of the topographic surveys into a single, useable survey. It was his great achievement to both furnish the vision and lay the groundwork of the new national policies. Darrah's book is an excellent account, both of the interesting life of Major Powell and of the story of the canyon country.

DON D. LESCOHIER

University of Wisconsin



Urban Real Estate Markets: Characteristics and Financing. By Ernest M. Fisher, New York: National Bureau of Economic Research, 1951. pp. 186. \$3.00.

No more competent person could be found for the purpose of describing and analyzing the characteristics of the urban real estate market than Dr. Ernest M. Fisher of Columbia University. His pioneer work in the diffuse, complicated, and dynamic field of the urban market has been noteworthy through his years in teaching, research, and government service. This background was of unusual value in making a study which relates the market to the problems and techniques of its financing.

This study, which represents Part I in the six parts of the Urban Real Estate Finance Project of the National Bureau of Economic Research, actually is the third of the Project's publications to appear. For those persons who have read the other two studies it is apparent from a perusal of Fisher's work that it is the cornerstone and the one which

gives perspective, orientation, and greater meaning to the more specialized studies which follow it in the series sequence.

Fisher opens his study with a brief, traditional description of the economic characteristics of private property in urban land and improvements. His emphasis on rights and services is seasoned immediately, however, with their relation to some of the basic considerations of real estate financing. This type of idea is brought out particularly well in his comments on durability, expectations, and price changes.

The main body of the book approaches the problem of market description in terms of an examination of each of the interrelated sub-markets that go to make up the whole and of the individual financing techniques and problems of each market. Here, of course, Fisher is at his best and in the mind of this reviewer presents the most compact, and yet complete and incisive description of market mechanics that has yet been presented in general terms in the field of urban land economics. His description, for example, of "The Market for Homes in Fee" sets the pattern for later chapters. The chapter traces the forces affecting this form of tenure and gives the course of development of buyers' and sellers' markets and the transition between the two. It is in connection with his analysis of the market for homes in fee that the author does his most complete work in relating the pertinent techniques and problems of finance. Here can be found a rather complete analysis of the effects of varying the traditional elements of amount of debt, interest rate, and term of mortgage. Fisher uses recent, excellent sources (nearly all from the 1940's) and many tables to document these market discussions.

One section on the relation of credit to price gives much light on the current discussion over housing credit and inflation. It relieves the current myopia developed by a decade of inflation and gives good perspective to the position of credit and price in buyer's and seller's markets.

A very welcome discussion on the action of rent control in the residential rental market shows Fisher as the strict market analyst. He seems to minimize the importance and effects of the social goals of this type of program. But he competently shows the relation of rent control to real estate investment, construction, and home ownership. The con-

cluding chapters on the market for investment in fees both residential and commercial and on miscellaneous markets in subdivision lots, office space, commercial leases, and industrial properties is given very brief treatment. Brevity is, however, a resultant of the relatively lesser importance of these markets coupled with a dearth of data on which to construct more complete analyses.

All through this study the extreme complexity and variability of the market combined with the peculiarities of the product and of the records of its activity hinder the piecing together of a convincing continuum of data. But Professor Fisher has so presented his hard-won facts that they whet the desire of the reader for further research into this dark corner of the field and bring him to a better understanding of the necessity for the existence of the diverse techniques, the costs, and numerous risks that characterize the financing of the different real estate markets.

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Shopping Centers. Design and Operation. By Geoffrey Baker and Bruno Funaro. New York: Reinhold Publishing Corporation 1951. pp. 288. \$12.00.

A new type of commercial center in the United States in which a cluster of retail stores owned by one operator is surrounded by a belt of parking space is the most recent change now in the process of being effected in the urban land use pattern, as a result of the suburban movement and the rapid increase in automobile ownership. Prior to 1930, retail store clusters outside of central business districts had grown up at street-car intersections, subway and suburban railroad stations. In these earlier outlying business districts, relying almost entirely on shoppers coming on fixed rail routes, the stores were built one at a time on individual 25- or 50-foot lots, which had acquired a highly speculative land value as soon as plans for the transit line were announced. As a result of the diversity of ownership and the narrow lots, the architect and site planner were in a strait jacket and there was little scope for flexibility in building design. The rentals

and valuation of the stores likewise followed a stereotyped pattern, being governed by the existing pedestrian traffic flow and the volume of sales actually realized by stores in the area. The need for parking spaces for cars was at first not realized and, when the number of customers coming by automobile greatly increased, it was difficult if not impossible to provide parking lots in districts solidly lined with store buildings, where the nearest vacant lots had acquired a high speculative value.

The new commercial pattern is entirely different from the old model. The architect and site planner are almost entirely freed from the shackles imposed by the stringlike store centers with their narrow lots. The developers of the shopping centers depending chiefly upon customers coming in automobiles can search for vacant tracts of 5 to 100 acres on highways near the edges of cities where the land is cheap enough to permit them to devote 70 to 80 percent of it to parking facilities. The magnets of free parking and a sufficient variety of merchandise will cause shoppers to beat a path in their cars to these new locations, regardless of whether they are near existing store centers. The success of stores going to outlying locations where there is room for ample parking has been proved by the experience of Sears Roebuck and many supermarkets. At first, solitary stores and then clusters of stores in which there were supermarkets, drug stores, 5 & 10c stores and local convenience stores, were established in many cities. Finally, the fully-developed regional center, with department and specialty clothing stores as well as food and drug stores is emerging. Northgate in Seattle, Framingham near Boston, Cameron Village in Raleigh and the Hecht Company and Kann Company centers in Arlington, Virginia, already operating, and centers such as that of Marshall Field & Company near Chicago and those of the J. L. Hudson Company in Detroit which are in advanced planning stages, are examples of centers drawing customers from a large segment of a metropolitan area.

Coming at the psychological time when this new type of commercial development is still in a formative stage, this book by Geoffrey Baker and Bruno Funaro is an invaluable, practical guide for owners, developers, site planners and architects of these new centers. The authors have visited most of the larger

shopping center locations in the United States. In this book are shown photographs, site plans and models of 63 different shopping centers, from small neighborhood clusters to large community and regional centers. The importance of the market analysis in determining the volume of business and the size of the store cluster is emphasized, and the survey methods of four different market research organizations are analyzed. Parking requirements are discussed and there are numerous illustrations of parking layouts for centers of different size. The important question of the location of different types of stores within the center, the handling of freight, the circulation of shoppers in cars and on foot, the accessibility of highways and

traffic capacity are all carefully considered.

This book is a splendid example of the great value of the case method in the field of land economics. The principles of the new shopping centers and the basic reasons for their emergence are expertly developed by the authors. The basic concepts are not evolved by ivory tower reasoning but they are based on the examination of existing or planned shopping centers of varying sizes in many different communities. Geoffrey Baker and Bruno Funaro have made an outstanding, original contribution to the dynamic principles of land economics.

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